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**QUADRENNIAL  
REVIEW OF MILITARY  
COMPENSATION (3rd).**

**STAFF STUDIES  
and selected supporting papers,**

**Volume I,  
REGULAR MILITARY COMPENSATION.**

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Third Quadrennial Review of  
Military Compensation

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## PREFACE

These volumes present the staff studies and supporting papers prepared for the Third Quadrennial Review of Military Compensation.

The Third Quadrennial Review of Military Compensation was conducted under the provision of section 1008(b), title 37, United States Code, which requires that the President not less than once each four years direct a complete review of the principles and concepts of the the compensation system for members of the uniformed services and submit a detailed report to the Congress.

These papers supplement the report to Congress, which is being issued separately.

The First Quadrennial Review of Military Compensation in 1967 concentrated its attention on the elements of regular military compensation and retirement. Its touched only lightly military benefits and special and incentive pays. The professional staff, and its administrative support staff, worked with great dedication to provide useful material for the consideration of the QRMC. Their names, and the names of those for whom they worked are included in this report.

The Second Quadrennial Review of Military Compensation in 1971 limited its study to submarine pay flight pay, reenlistment bonuses, pay for physicians and hostile fire pay. Its efforts resulted in a restructuring of three pays to meet the needs of the all volunteer force; flight pay, the selective reenlistment bonus, and the variable incentive pay for physicians.

The Third Quadrennial Review of Military Compensation was a more ambitious and comprehensive undertaking than any previous study of military compensation. It considered all elements of military personnel costs that might be argued to be military compensation -- some to separate items altogether. It undertook, for the first time, an attempt to value military benefits. However, given the relatively limited staff, the QRMC took several steps to limit the staff research effort required:

. The majority of minor military manpower cost elements were judged to be not compensation or small or no cost and were not studied.

. Minor compensation and reimbursement type cost elements were not studied in depth.

. Review of the individual elements in the system of special and incentive pays was assigned to the offices with primary interest.

The remaining elements of pay, allowances, and major compensation benefits were analyzed in-depth by the professional staff of the QRMC. These analyses are published in the Staff Research Papers volumes. They include supporting contractor-developed studies as well. A number of papers remain unfinished; when completed, they will be published in a final volume.

The views expressed in the staff papers are those of the professional staff and do not represent the position of the Quadrennial Review of Military Compensation or of the Department of Defense. Their publication in these volumes does not imply approval or endorsement by the Department of Defense or the President, whose views are stated in the final report.

All of the papers published by the Quadrennial Review of Military Compensation may be reproduced and disseminated without further authorization. Additional copies, beyond those initially distributed, may be purchased, by volume, from the Government Printing Office, Washington, D. C.

J. R. Talbot  
Captain, USN  
Staff Director  
Third QRMC

WASHINGTON, D. C.  
December, 1976

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GLOSSARY OF TERMS



**QUADRENNIAL REVIEW OF MILITARY COMPENSATION  
WORKING GLOSSARY OF TERMS  
July 29, 1975**

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12. Salary
13. Special Pays
14. Total Military Compensation (TMC) or Military Compensation
15. Vesting
16. Vested Liabilities (Public Law 93-406, Sept. 20, 1974)

1. Allowance

An indirect or contingent remuneration which may or may not be earned, and which is sometimes in the nature of compensation and sometimes in the nature of reimbursement.

(Clifford Jones vs. The United States, 60 Ct Cls 552, April 13, 1925)

2. Asterisked Item

An entitlement, service, or advantage to a service member or dependent provided by the Government to recognize unusual working or living conditions peculiar to military service life. For pay comparison purposes, such an entitlement, service, or advantage may be classified as either a compensation item or a non-compensation item, but would not be called a pay or a fringe benefit.

3. Contributory Retirement System

A retirement system whereby a service member contributes periodically an amount of money, which is combined with a matching or other stated multiple amount contributed on the part of the Government, to finance member retirement.

4. Fringe Benefits

A financial advantage to a service member which is a compensation item and is provided as an addition to the military equivalent of civilian salary or wages and to special or premium pays. A specific fringe benefit is not necessarily received by or even available to all service members.

5. Government Incurred Costs

Government incurred costs result from exigencies of the operating requirements of military service which cannot reasonably be considered as payment for work performed.

6. Military Compensation Item

A military compensation item is one that:

- a. Costs the Government money, either directly or indirectly, now or in the future, and

b. Is of value to the recipient, exclusive of reimbursements and certain Government incurred line of duty costs, in one or more of the following ways:

- (1) It adds net cash to his current income,
- (2) It permits him to realize a current net cash saving,
- (3) It creates a present value to him based on the prospect of future receipt, and

c. Is considered compensation by other federal, or government agencies, and in the majority of instances in private industry, and

d. Is measurable.

7. Military Equivalent Salary

A combination or sum of those items of military compensation that are considered the equivalent of civilian salary.

8. Military Salary System

A system of compensation whereby the military equivalent salary is paid entirely in cash and is fully taxable.

9. Non-Compensation Benefit

- a. An advantage to a service member or dependent which, when available, is not an item of compensation, but is provided due to a moral or other obligation of the Government; or
- b. The favorable circumstance resulting from its exercise is either primarily or equally advantageous to the Government; or
- c. Is provided at little or no cost or inconvenience to the Government, but directly enhances morale and well-being of the recipient.

10. Pays and Allowances System

A compensation system comprised of various pays, allowances and benefits provided in cash or in-kind and based upon both remuneration for service performed as well as to fulfill certain and distinct purposes including Government obligation.



11. Regular Compensation or Regular Military Compensation (RMC)

" 'Regular compensation' or 'regular military compensation (RMC)' means the total of the following elements that a member of a uniformed service accrues or receives, directly or indirectly, in cash or in kind each payday: basic pay, basic allowance for quarters, basic allowance for subsistence, and federal tax advantage accruing to the aforementioned allowances because they are not subject to Federal income tax." (37 U.S.C. 101(25))

12. Salary

A fixed periodic sum of taxable cash normally paid in increments as the usual full monetary return for services performed without regard to marital status or family size.

13. Special Pays

Taxable cash pays that depend on special occupational qualifications or duty performance.

14. Total Military Compensation (TMC) or Military Compensation

- a. The sum of all items of compensation that members of the uniformed services accrue or receive, directly or indirectly, in cash or in kind.
- b. The composition of all items of military compensation without regard to the number or type of these items to which any particular member, officer or enlisted, may be entitled.
- c. The sum of military equivalent salary, fringe benefits, and special and premium pays for an individual service member.

15. Vesting

The attainment by a participant of a benefit right, attributable to employer contributions, that is not contingent upon a participant's contribution in specified employment.

(Bulletin of the Commission On Insurance Terminology of the American Risk and Insurance Association - Vol. 1, No. 4.)

16. Vested Liabilities (Public Law 93-406, Sept. 20, 1974)

The present value of the immediate or deferred benefits available at normal retirement age for participants and their beneficiaries which are non-forfeitable.

**MILITARY COMPENSATION SYSTEMS**

**A Staff Research Paper**

**Prepared For**

**The Third Quadrennial Review**

**Of Military Compensation**

**15 June 1976**

QRMC STAFF RESEARCH PAPER  
MILITARY COMPENSATION SYSTEMS

Purpose: The purpose of this paper is to describe the current military pays and allowances system including the mix of compensation between salary/MES and benefits in the total compensation structure; compare total military compensation with that of Federal Civil Service employees; and examine some alternatives for altering the current military compensation system. Illustrative compensation value estimates of these alternatives are provided to assist in narrowing the range of alternatives actively under consideration. It must be recognized that considerable disagreement continues to exist in the methodology employed to estimate the value of many compensation elements. Therefore, value estimates will continue to remain dynamic until decisions on preferred methodology are resolved by the Study Group.

Introduction: The purpose of any compensation system is to attract, retain, and motivate a qualified workforce. In order to accomplish this goal, the compensation system should be understood by the employees of an organization and be perceived as fair and equitable both as to overall levels of compensation and the administration of the system. At the same time, the compensation system should be structured to enable the organization to get the best "return" on its compensation dollars. There are two major decisions that must be made in order



to structure a military compensation system which will best attract, retain, and motivate the necessary quantity and quality of military personnel:

- o How should the levels of military compensation be determined?

The 1975 QRMC has narrowed the alternatives to two:

(1) A competitive-based system which is designed to attract and retain the desired quality and number of employees through differential wages. The current levels of military compensation would be accepted as the base. Annual adjustments in pay, which is based on rates of change in related private sector pay levels, would be applied differentially to address needs in each skill group. Under this specific competitive alternative, shortage skills could receive up to 50% more than the average private sector percentage increase. Skills with a potential oversupply would receive as much as 60% less than the private sector percentage increase. Special and incentive pays would be used to correct manning problems in specific skills.

(2) A comparability-based system in which compensation is set by linking key jobs in one system with those in another system, then linking the pay (either salary or total compensation) of the persons filling the linked jobs. Annual pay adjustments are then tied to those in the linked system. Under the specific comparability alternative being considered by the QRMC, military compensation levels would be set through job linkages with the Civil Service. Annual pay adjustments would be tied to those of the Civil Service. Special and incentive pays

would be used to correct manning problems in specific skills. Under the comparability system, an amount may possibly be added to the linked compensation to account for the unique conditions of military service (the "Military Factor").

o After the levels of military compensation have been determined what type of system should be used to compensate military personnel? The QRMC Staff considered these alternatives:

(1) The current pays and allowances system which includes non-taxable quarters and subsistence;

(2) A modified pays and allowances system under which the allowances would be adjusted to defray the expenses for which they are intended;

(3) A fully taxable pays and allowances system which, in addition to adjusting the allowances to cover expenses, would make the allowances taxable, thus eliminating the tax advantage element;

(4) A combined compensation system which would apply the modified pays and allowances system for first term enlisted personnel and place officers and career enlisted personnel under a salary system;

(5) A military salary system for all personnel. The four elements which currently comprise Regular Military Compensation (RMC)--basic pay, quarters and subsistence (cash and in-kind), and tax advantage--would be replaced by a single salary payment.

Decisions on these two major issues will set the broad parameters within which the military compensation system will be structured. Within this broad framework, there are additional considerations such as the contributory or non-contributory nature of the retirement and health benefits which will impact upon how total military compensation is structured.

TOTAL MILITARY COMPENSATION UNDER THE CURRENT PAYS AND ALLOWANCES SYSTEM

Military personnel currently receive four elements of compensation, the sum of which is equivalent to the salary received by civilian employees:

(1) Basic pay, which is based on work performed and which varies by pay grade and longevity step (time in service). Basic pay is the only element of military compensation received in cash by all service members each payday;

(2) Quarters, which is based partly on need and, since the quarters increase with rank, partly on work performed, varies by pay grade and by dependency status within grades. Service members are provided either government quarters or a cash allowance (basic allowance for quarters);

(3) Subsistence, which is based on need with different amounts paid to officers and to enlisted personnel. All officers receive a cash allowance while enlisted personnel are provided either subsistence by the government or receive a cash allowance (basic allowance for subsistence);

(4) The tax advantage which accrues to military personnel because quarters and subsistence are not taxable.



Tax advantage, for pay setting purposes, is based on military basic pay rather than the total taxable income an individual (or family) may earn during a year.

Table A displays current average cash and in-kind Regular Military Compensation (RMC) by pay grade.

In addition to the salary-like elements of military compensation, military personnel receive a variety of fringe benefits, the most significant of which are a non-contributory retirement system and a health care system which provides health care to members and their dependents without premium charges.

Fringe benefits are a significant amount of total compensation for both military personnel and for civilian workers in government and in the private sector. The trend in the civilian sector is in the direction of increased fringe benefits. This trend is coming under increased scrutiny, however, as the full cost impact of the benefits become more visible. A great deal of recent publicity has concentrated on the cost of retirement programs of government employees, especially those of firemen and policemen in the financially troubled cities. The problems of high health care costs are now appearing more frequently in the financial press.

It is this recognition of the increasing costs of benefits which has promoted more and more emphasis upon total compensation rather

than upon salary when evaluating employee compensation programs. The State of California has implemented a total compensation comparability program for determining adjustments to State employee's compensation. The President's Panel on Federal Compensation recently advocated total compensation comparability for Federal Government employees. The Defense Manpower Commission has advocated that the items currently comprising regular military compensation be converted into a fully taxable salary system and differences in the present regular military compensation based upon marital status should be eliminated. The Commission also recommended that there should be no explicit payment to all or most Service members which is specifically designated as compensation for the "X-factor". It did not make specific recommendations regarding total compensation.

The QRMCM Study Group has agreed that military compensation should be set on the principle of total compensation. However, determining the cost and value of many compensation items is difficult and sometimes controversial. The Civil Service Commission has estimated that it will take at least two years before accurate private sector total compensation data can be developed with satisfactory accuracy. Even that effort is being limited to salary and certain major benefits.

The QRMCM Staff has developed methodologies for estimating the cost and value of military compensation elements. Estimating the cost and value of benefits in the civilian sector is difficult because of the

lack of data in estimating benefits. It is even more so for the military since many of the military compensation programs have dual objectives--military functional objectives and compensation objectives. For example, part of the military health care system is for maintaining a medical establishment to meet wartime requirements. As a result, there is not full agreement within the Study Group on the proper way to estimate cost and value.

Table B displays estimates of total military compensation by pay grade. These estimates are based upon methodologies and assumptions with which there is disagreement and which may later be modified. The purpose of presenting the estimates of total compensation is to provide a base for discussing the impact of alternative compensation systems and for developing preliminary cost estimates.

#### ALTERNATIVE COMPENSATION SYSTEMS

The alternative compensation systems being evaluated by the QPMC Staff are:

(1) Competitive-based systems:

- (a) current pays and allowances system;
- (b) modified pays and allowances system;
- (c) fully taxable pays and allowances system;
- (d) combined pays and allowances and salary system; and
- (e) a salary system; or

(2) Comparability-based systems:

- (a) current pays and allowances system;
- (b) modified pays and allowances system;
- (c) fully taxable pays and allowances system;
- (d) combined pays and allowances and salary system; and
- (e) a salary system.



### COMPETITIVE-BASED SYSTEM/CURRENT PAYS AND ALLOWANCES

Under the competitive-based system, the base levels of military compensation can be determined independently of those prevailing in some selected segment of the civilian work force. The current compensation levels (Table B) will be used as the base amounts for analysis of the competitive-based systems. Within the context of the current pays and allowances system, there are changes which can be made to increase compensation system effectiveness and/or equity. The primary areas where changes may be considered are: (1) the intragrade and intergrade differentials in the military basic pay table; (2) implementing a merit pay increase plan; (3) equalize the with dependents and without dependents quarters rates; and (4) equalize officer and enlisted subsistence rates.

#### (1) Intragrade and intergrade differentials

In the basic pay table, intergrade differentials measure the change in advancing from a pay grade to the next higher pay grade in the same longevity step. It is a measure, therefore, of the financial incentive for the increased responsibility which accompanies promotion. Intragrade differentials measure the change in moving from one longevity step to the next in the military basic pay table and is a reward for increased experience, and expected improved performance levels, associated with time spent in service.

As shown in Tables C and D, there is no consistent pattern for intergrade and intragrade differentials in the current military basic pay table. Like many other military compensation items, the structure of the basic pay table has evolved through a series of changes which addressed specific problems at the time but which may or may not be achieving

the desired results at present. The pay increases for promotion in the E-3 to E-5 range appear to be quite small compared to the increases in responsibility which go with promotions. The large differences in the intragrade differentials which, in several pay grades, appear at critical decision points during a normal career progression pattern also need to be evaluated carefully.

The structure of a pay system should be geared to the needs of a particular organization and not necessarily what another organization does, because what best serves one employer may be ineffective for another. For this reason, the structure and amount of intergrade and intragrade differentials vary widely among government and private sector employers. Federal General Schedule salaries are based upon a constant decreasing intergrade differential system and a 30% intragrade span (the difference between Step 1 and Step 10) for all grades.

An area, therefore, offering potential for improvement under the current pays and allowances system may be to restructure the basic pay table to better serve as an incentive for promotion and for remaining in military service.

#### (2) Merit Pay Increase Plan

Under the current longevity based basic pay system, military personnel receive basic pay increases based on time in service. The

longevity increase steps originated in a time when promotions were very slow in the military, and pay raises occurred infrequently. While they represent a measure of recognition of increased performance from increased experience, they were primarily useful as financial incentives for retaining and motivating qualified personnel.

Under present conditions where military personnel receive annual adjustments in pay to keep pace **with** pay increases in the private sector, the purposes of the present longevity based pay raises are no longer as important as before. The 1974 survey of compensation practices by the Civil Service Commission showed that approximately 70% of exempt and nonexempt employees in the private sector and non-profit were covered by a merit increase plan as opposed to a length-of-service system. Length-of-service pay increases are quite common in state and local governments.



An option under the current pays and allowances system is to replace the current automatic longevity increases with a merit increase system. The Federal Civil Service uses a nominal merit increase system. A system of periodic performance evaluations would need to be implemented in conjunction with a merit increase system. The administrative complexity of such a system could be substantial. The competitive promotion system in the military service, involving regular and highly formalized quality evaluations, is used in support of the military "up or out" policy, quite rigidly applied to the officer corps, and to a lesser extent, to the enlisted force through quality control on reenlistments and retirement timing. Thus, there is a distinctive merit increase aspect in the current military compensation system.

(3) Equalize the with dependents and without dependents quarters rates

Under the current pays and allowances system, military personnel of the same pay grade and longevity step receive different quarters rates depending on whether or not they have dependents. Thus, two people doing the same work receive different rates of pay. The military is probably the only organization in the United States which pays a differential base salary (defined as RMC) based on dependency status.

An option for altering the current pays and allowance system is to equalize the quarters allowance such that members of the same pay grade and longevity step would be receiving equal pay for equal work. The cost impact of implementing this change depends upon the system chosen for equalizing the rates. If the without dependents rates were raised to the with dependents rates, the cost would be around \$500 million. (Table E). This estimate is based on the assumption that personnel without dependents occupying quarters and those on sea and field duty would not forfeit the entire amount of the increased allowance but rather would continue to forfeit an amount equal to the current with dependents rates. The effect of this assumption is that all personnel in the force without dependents, both in government quarters and on the economy, would receive a pay raise equal to the difference between the current with dependents and without dependents rates.

This option is described because it is customary to view the with dependents level of BAQ as the appropriate one. Most recently, DoD has proposed a pay raise reallocation system designed to increase the allowance level, using the with dependents rate as the control. However, it may be argued, with particular merit in the lower grades where the population is largely without dependents, that the "appropriate" rate is the without dependents rate. Equalizing the allowance at that rate would save about \$500 million.

(4) Equalize officer/enlisted subsistence

Currently officers and enlisted personnel receive different basic allowance for subsistence (BAS) rates. This situation developed

as the result of legislation which provided for periodic increases in enlisted subsistence rates to keep pace with raw food costs while officer subsistence rates remained constant between 1952 and 1974.

An option under the current pays and allowances system is to equalize the officer and enlisted subsistence rates. The cost impact of equalizing the rates are based on the assumption that the officer rate would be raised to the level of enlisted rate.

TABLE F

COST OF EQUALIZING OFFICER AND ENLISTED  
BASIC ALLOWANCE FOR SUBSISTENCE

1. Current Enlisted BAS - \$2.53/day or \$76.95/month.
2. Current Officer BAS - \$53.05/month.
3. Increase needed to Equalize Rates - \$23.90/month  
or \$286.80/year.
4. Total Cost = \$286.80 x 286,753 Officers = \$82 million.

The pay raise reallocation bill currently before the Congress would provide the option of achieving the adjustment within overall RMC levels in conjunction with future pay increases. The appropriateness of this would depend on the pay standard adopted.

COMPETITIVE-BASED SYSTEM/MODIFIED PAYS AND ALLOWANCES

One of the major causes cited by military personnel for dissatisfaction with the current military compensation is the discrepancy between the allowances for quarters and subsistence, primarily the quarters allowance, and the expenses for housing and food which the allowances are intended to defray.

Under the modified pays and allowances system, the quarters



and subsistence allowances would be raised to levels which would cover housing and food expenses. A decision remains to be made on what data source is best for the purpose of establishing the allowance levels. There are three which could be used to estimate expenses for housing incurred by military personnel:

(1) Value of Government Provided Quarters

Lacking the market rental data, or professional appraisal data, the QRMC Staff has estimated the value of government quarters based on the government capital and operating cost of married quarters.

This estimate could be used as a surrogate for expenses incurred by military members living on the civilian economy. This position has been advocated by the military services.

(2) Survey of Military Personnel

Each year the Naval Facilities Engineering Command (NAVFAC) conducts a survey of expenses actually incurred by married military personnel of all services at various installations both in CONUS and overseas. The survey covers both rental and ownership costs, by pay grade.

(3) Federal Housing Administration (FHA) Data

FHA collects quarterly data on housing expenses by income category for persons buying homes under FHA insured mortgages. FHA data was used for adjusting the Basic Allowance for Quarters rates in both 1963 and 1971.

Table G shows a comparison of the current with dependents BAQ rates with housing expenses from the three sources cited above.

Regardless of the data source, the current BAQ rates would have to be raised under the modified pays and allowances system. Under the competitive-based system in which current levels of military compensation is taken as a proper base amount, the increases would occur over a period of time through the annual pay raise mechanism. Under this system, a larger proportional amount of the annual pay raise would be placed into the quarters allowance until it reached a level which defrays housing expenses.

There are basically two optional data sources for establishing BAS rates which would defray food expenses: (1) raw food cost to the government, currently \$2.82 per day; or (2) the estimated cost of subsisting on the civilian economy as reported by the Bureau of Labor Statistics (BLS). BLS publishes several data series from which the individual cost of subsisting on the economy may be derived. These costs range from \$2.72 to \$2.89 per day. This paper uses the \$2.89 cost estimate. The services support the raw food option. While it is an important policy decision there is little practical difference between the two options. Table H compares current BAS rates with the rates under the two options named above. Under the modified pays and allowances system, the BAS rates for officers and enlisted personnel would be equalized.

#### COST IMPACT

Under the competitive-based modified pays and allowances system, there would be no cost increases since the levels of military compensation would not be changed. The increases in BAQ and BAS necessary to bring the allowance in line with housing expenses would

be made as part of the annual adjustment in military pay and therefore, no increased cost over the current system would result from the implementation of this system.

#### FULLY TAXABLE PAYS AND ALLOWANCES SYSTEM

There are two initiatives which would be taken under the fully taxable pays and allowances system: (1) like under the modified pays and allowances system, the quarters and subsistence allowances would be raised to levels which defray housing and food expenses; (2) in addition, the allowances would be subject to income taxes thus eliminating the tax advantage element.

Under a competitive-based system

the two changes in the current compensation system will be made within the constraints of current compensation levels. While the allowances would be raised to levels which defray expenses, the taxation of the allowances would leave members with essentially the same take home pay, on the average.

Under this system, the subsistence allowance would be raised to a level which offsets food expenses for an individual and would be equalized for officers and enlisted personnel.

For personnel living in government quarters, a "fair market" rental system would be implemented, replacing the current system of authorizing the quarters allowance only for those not in government quarters and for bachelors also not on sea duty.



## COST IMPACT

Table I shows the cost impact of converting to a fully taxable pays and allowances system under a competitive-based system.

This cost estimate is based on the following assumptions:

(a) The Basic Allowance for Quarters is established at the rental rates reported on the NAVFAC survey for married personnel.

(See Table G). Lacking the same data on single personnel, current without dependents BAO rates are used as an approximation. Under this system, bachelors on sea duty are entitled to BAQ.

(b) The Basic Allowance for Subsistence is the cost of subsisting an individual on the civilian economy as reported by the Bureau of Labor Statistics (BLS) - \$2.89 per day. Officer and enlisted BAS rates are equalized at this rate.

(c) The cost of providing for a saved pay provision is not included in the cost estimate.

## COMPETITIVE-BASED SYSTEM/COMBINED SYSTEM

Under the combined system, non-career enlisted personnel would be compensated by the modernized pays and allowances system and career personnel compensation would be converted to a salary system.

Non-career enlisted personnel would continue to receive basic pay based on grade and non-taxable allowances for quarters and subsistence. For career personnel, the elements of compensation which currently comprise military equivalent of salary (MES) would be replaced by a single salary payment. A "fair market" rental system would be implemented for career personnel occupying government quarters.

COST IMPACT

Table J displays the cost impact of the combined system under a competitive-based system. The determination of which personnel to classify as "non-careerists" or "careerists" must still be resolved. For illustrative purposes, an assumption is made that non-careerists are E-4's and below. Careerists are all officers, warrant officers, and enlisted personnel above E-4.

COMPETITIVE-BASED SYSTEM/SALARY

Under the military salary system, the pay elements that currently comprise Regular Military Compensation (RMC)--basic pay, quarters and subsistence allowances, and tax advantage--would be replaced by a single payment of salary. All military personnel would be compensated under a salary system. The levels of RMC currently existing would be converted to a military salary for each pay grade.

In addition, a "fair market" system of charges for personnel living in government quarters and for enlisted personnel eating in government messes would need to be implemented under a salary system.

COST IMPACT

Since the RMC levels currently existing would be converted to a salary, there would be no additional compensation costs under a salary system (ignoring possible saved pay provisions). However, there would be additional DoD budget costs as shown in Table K.

COMPARABILITY-BASED SYSTEM/CURRENT PAYS AND ALLOWANCES

Under a comparability-based system, the levels of military compensation will be set such that they are comparable to the compensation received by Federal Civil Service employees. Compensation comparability is determined through work level relationships between Civil Service and military grades. In addition, military personnel may be compensated for the unique conditions of military service which is not normally found in civilian employment. This "X-factor" is over and above that determined through the comparability process.

Crucial to setting military compensation based on comparability is a decision on the work level linkages between Civil Service and military grades. The QRMC Study Group has not yet made a decision on what the proper linkages should be. A range of five alternative linkages was presented to the Study Group. For illustrative purposes, two alternatives will be analyzed in this paper for showing how military compensation would ultimately be set under a comparability-based system:

(1) linkage to Civil Service at the General Schedule (white collar) grades based on Civil Service whole grade Job Evaluation Methodology. This alternative sets a bottom range for military compensation under the comparability system. The assumed linkages are those developed by previous compensation studies: E-3 to GS-3, E-7 to GS-7, O-1 to GS-7, and O-8 to GS-18;

(2) linkage to Civil Service at a combination of General Schedule and wage grades based on the Comparative Analysis Methodology. This alternative would set the upper range for military compensation. The



assumed linkages are: E-3 to a white collar/blue collar combination (13% of way between GS-3 and GS-5 + 79% of way between WG-5 and WG-6); E-7 to a white collar/blue collar combination (18% of way between GS-7 and GS-9 + 24% of way between WS-9 and WS-10; O-1 to GS-7 and O-8 to GS-18.

(1) Linkage to General Schedule Only

The beginning point in determining military compensation based on linkage to the Civil Service General Schedule is to derive estimates of General Schedule compensation. Table L displays estimates of total compensation by grade for General Schedule employees. As with the estimates of total military compensation, the computation of total compensation for General Schedule employees rests upon assumptions and methodologies which are subject to considerable disagreement. These estimates will be used, along with the estimates of military compensation in Tables A and B, for illustration purposes.

Charts 1 through 4 show a graphical comparison of compensation parity paylines based on Civil Service compensation practices with current military compensation. The charts are for officer and enlisted grades and display both salary (MES) and total military compensation. What the graphs depict, in general, is that General Schedule salaries tend to be higher than MES but the average level of total compensation in the two systems at the linkage points are quite similar. Table M shows a comparison of total compensation between the military and General Schedule at the linkage points.

Total compensation estimates for military and Civil Service personnel used throughout this research paper are based on the following set of assumptions:

- Economic assumptions used in deferred benefits are: 6% interest rate; 3% pay grade; 4% CPI growth which translates into a 5.2% annual adjustments to retired pay.
- The entry age normal methodology was used in valuing retirement benefits. This produced a valuation of 31.3% of basic pay for officers, 32.1% of basic pay for enlisted personnel, and 21.74% of salary for Civil Service employees (28.74% normal costs less 7% employee contribution)
- Life insurance benefit for civilians is based on the government contribution to cost of coverage (\$4,615 per \$1,000 of insurance).
- Other military benefits:
  - 4.95% of basic pay for social security benefit
  - Survivor benefits: 1.3368% of basic pay for officers and 0.538% of basic pay for enlisted personnel.
  - \$4 per member for Death Gratuity benefit valuation
  - DIC benefits based on economic assumption above. DIC benefit ranges from \$9 per year for O-1 to \$363 per year for W-4.

The slope of the General Schedule pay line is shaped by the accession, retention and promotion policies of the Civil Service. The slope of the military pay line will be shaped by considerations of military accession, retention, promotion flow points, etc. The compensation at the linkage points will be used to set the parameters of the military payline. For

illustrative purposes, the linkage points are used and it is assumed that work level differentials are linear in both the General Schedule and the military. Work level analysis performed on selected grades in the two systems indicates that may not be the case. The military total compensation pay line which achieves total compensation parity with the General Schedule is graphically displayed at Charts 3 and 4. Using this assumption, total military compensation parity, without application of the "X-Factor", and based on linkage to the General Schedule would require reductions in compensation for a number of military grades. (Table N) Overall, current total military compensation would be reduced by approximately \$1.8 billion. (Table O).

Adding the "X-Factor" to military compensation produces mixed results depending on the amount of the "X-Factor". At 5% of current RMC, addition of the "X-Factor" would result in substantial increases in total compensation for the officer grades (with the exception of the senior Generals) and substantial reductions in total compensation for most of the enlisted grades relative to current TMC levels. Overall cost impact would be a reduction of approximately \$1 billion in total military compensation. Adding an "X-Factor" of 15% of current RMC would give large increases in total compensation for all officer grades and would produce mixed results for



enlisted personnel. The senior enlisted grades (E-7, E-8, and E-9) would have a large reduction in total compensation. Overall, total military compensation would be increased by approximately \$1.5 billion.

(2) Linkage to Civil Service at a combination of General Schedule and Wage Grade

An alternative linkage under the comparability-based system and one which generally sets the upper bound: of the military total compensation payline is to include wage grade employees at the enlisted linkage grades. Total compensation comparisons at the linkage grades are shown in Table P.

Assuming a military total compensation payline shaped the same as the Civil Service total compensation line, total compensation levels which achieve parity with Civil Service are determined for the other enlisted grades. The results are shown in Table Q. The total compensation impact is shown at Table R.

COMPARABILITY SYSTEM /MODIFIED PAYS AND ALLOWANCES

Under this alternative, the current levels of military compensation would be adjusted to achieve parity with the Federal Civil Service. Within the adjusted levels of military compensation, the quarters and subsistence allowances would be adjusted to levels which would defray housing and food expenses and would be paid to bachelors on sea duty. Since the changes to military compensation determined through the comparability process would vary significantly by pay grade, whether the linkages are with General Schedule only or with a combination of General Schedule and

Wage Grade, adjusting the allowances to cover expenses would necessarily occur over a period of time in order to maintain balance in the military compensation system.

The cost impact of this system is that which would be necessary to achieve total compensation parity. This may range from a compensation cost reduction of \$1.8 Billion to additional compensation costs of \$5.9 Billion depending on the linkage alternative and method of recognizing the "X-Factor". The cost of converting the current system to the modified pays and allowances system--adjusting the allowances to cover intended expenses--would be absorbed over a period of time through the annual pay adjustment mechanism.

#### COMPARABILITY SYSTEM/ FULLY TAXABLE PAYS AND ALLOWANCES

Under this alternative, the adjustment to the current pays and allowances system would be accomplished in two steps: (1) the levels of total military compensation required to achieve total compensation parity with the Federal Civil Service would be determined using one of the linkage alternatives. Adjustments to the current levels of total military compensation would then be made for each pay grade. The adjustments may vary significantly by pay grade; (2) as under the competitive system, the two allowances would then be adjusted to cover food and housing expenses and a "fair market" system or charges for government provided food and housing would be implemented.

The cost impact of this alternative is also composed of two parts: (1) the cost impact of achieving total compensation parity. As

discussed previously, this may range from a total compensation reduction of \$1.8 billion to additional total compensation of \$5.9 billion depending on the linkage alternative and method of recognizing the "X-Factor," (2) the cost impact of converting the current pays and allowances system to a fully taxable pays and allowances system. (Shown in Table I).

#### COMPARABILITY SYSTEM/COMBINED SYSTEM

Under this alternative, levels of military compensation would be adjusted to achieve compensation parity with the Federal Civil Service. For those enlisted personnel who comprise the non-career force, the adjustments will be made within the framework of the current pays and allowances system. Officer personnel and all those enlisted personnel careerists would be paid under a salary system the levels of which would be determined through the comparability process. For personnel residing in government quarters and/or subsisting in government messes, a "fair market" system of charges will have to be implemented.

The cost impact of this system is both that of achieving parity (ranging from - \$1.8 billion to + \$5.9 billion) and of converting the current pays and allowances system to the combined system (shown in Table J).

#### COMPARABILITY SYSTEM/SALARY

The salary levels by pay grade under a comparability system will be determined through total compensation parity with the Federal Civil Service.



Once the total compensation parity levels by pay grade are determined, adjustments will be made to the current levels of RMC and the adjusted RMC amount will be converted to a salary. A fair market system of charges for government provided food and housing will be made.

The cost impact of converting to a salary at parity is twofold: (1) the cost impact of achieving parity-- from a total compensation reduction of \$1.8 billion to additional total compensation of \$5.9 billion, and (2) the cost impact of converting the pays and allowances system to a salary system. (Table K).

#### SUMMARY

There are two major decisions to be made by the QRMC which will define the broad outlines of the military compensation system:

(1) Should levels of military compensation be determined by a comparability-based system or a competitive-based system?;

(2) What type of system should be used to compensate military personnel--(a) the current pays and allowances system; (b) a modified pays and allowances system; (c) taxable pays and allowances system; (d) a combined modified pays and allowances and salary system; a salary system?

The cost impact of the decisions are significant. The total compensation cost differences of the parity decision alone can range from

a reduction of \$1.8 billion to an increase of \$5.9 billion dollars. Table S summarizes the cost impact, and comparison of, the alternative compensation systems. It must be emphasized that at this stage the cost calculations are preliminary approximations. Refined cost estimates can be made after decisions are made, for example, on implementation of a comparability-based system.

#### IMPACT OF ALTERNATIVE COMPENSATION SYSTEMS ON INDIVIDUAL SERVICE MEMBERS

Table S gives rough aggregate cost impacts of the various alternative compensation systems. While there are significant cost implications of each of the alternative compensation systems, there are also significant shifts in compensation among military personnel associated with the alternatives. At Appendix A are sixteen tables which show the impact of the alternatives on four different situations at four selected military grades. The selected grades are E-3, E-7, O-2, and O-5. The officer grades used in constructing the parity payline was O-1 and O-8. However, because grades O-2 and O-5 are more representative of population density in the officer grades, they were chosen for illustrative purposes. Modal longevity step and for married personnel, modal family size, was used for the selected examples. Total compensation parity for O-2 and O-5 is that derived from the total compensation parity payline. (See Table N). For each grade the alternative compensation systems impacts are shown for the following situations:

- (a) married and receiving cash allowances.
- (b) married and receiving in-kind allowances (quarters).
- (c) single and receiving cash allowances.
- (d) single and receiving in-kind allowances.

The calculations for the tables were made under the following assumptions:

1. All of the adjustment necessary to achieve total compensation parity under the comparability alternatives were made in basic pay.
2. The compensation adjustments are those under a system without an "X-Factor".
3. Quarters allowances under the modified system is the QRMC Staff developed value of government quarters and subsistence value is current raw food cost to government.
4. Quarters allowance under the fully taxable system is the off post rental expenses as reported in the NAVFAC survey for married personnel, and approximated by using current BAQ rates for single personnel. Subsistence allowance is food expenses reported by BLS.
5. The salary for each selected example under the competitive system is the average cash and in-kind RMC for that pay grade and longevity step. This salary amount is adjusted under the comparability systems to achieve total compensation parity.



## IMPLICATIONS

There may be significant compensation shifts both among military pay grades and within grades depending upon the alternative compensation system selected, as shown in the sixteen charts of selected examples at Appendix A. The range of aggregate cost impact is also significant (Table S). For example, a comparability-based system linked to General Schedule only and without an "X-Factor" is less costly than a competitive based compensation system. However, if the linkage points are based on a combination of General Schedule and Wage Grade, the comparability based system is more expensive than any of the competitive based systems.

The intent of this research paper is to serve as a working document which can be used as a tool for analyzing compensation and cost implications of decisions on major issues of the 1975 QRMC.

A detailed analysis of the compensation shifts which would result from each of the alternative compensation systems will be provided in a supplementary research paper.

TABLE A

## AVERAGE CASH AND IN-KIND REGULAR MILITARY COMPENSATION (RMC)

GRADE	BASIC PAY	QUARTERS	SUBSISTENCE	TAX ADVANTAGE	RMC
O-10	\$ 47,912	\$ 5,866	\$ 637	\$ 6,745	\$ 61,160 <sup>1</sup>
O-9	42,275	5,594	637	5,815	54,321 <sup>1</sup>
O-8	38,103	4,925	637	4,506	48,171 <sup>1</sup>
O-7	33,142	4,589	637	3,543	41,910
O-6	27,599	3,608	637	2,330	34,173
O-5	22,508	3,262	637	1,670	28,077
O-4	18,323	3,024	637	1,318	23,301
O-3	14,813	2,579	637	970	18,998
O-2	11,604	2,165	637	686	15,092
O-1	8,400	1,594	637	573	11,204
W-4	17,469	2,725	637	1,147	21,978
W-3	14,316	2,643	637	889	18,484
W-2	11,372	2,614	637	734	15,358
W-1	10,028	2,585	637	718	13,968
E-9	14,678	2,740	923	1,037	19,378
E-8	12,168	2,599	923	804	16,494
E-7	10,305	2,490	923	750	14,468
E-6	8,533	2,223	923	709	12,388
E-5	6,844	1,767	923	604	10,138
E-4	5,719	1,020	923	433	8,095
E-3	5,191	674	923	355	7,143
E-2	4,831	561	923	328	6,644
E-1	4,334	529	923	321	6,109

<sup>1</sup> Without Executive Level V limit.

TABLE B

## AVERAGE TOTAL MILITARY COMPENSATION

GRADE	AVERAGE RMC	BENEFITS			TOTAL BENEFITS	TOTAL MILITARY COMPENSATION
		RETIREMENT	OTHER <sup>1</sup>	HEALTH CARE		
O-10	\$ 61,160	\$ 15,003	\$ 1,843	\$ 1,179	\$ 18,025	\$ 79,185
O-9	54,321	13,238	1,897	1,178	16,313	70,634
O-8	48,171	11,931	1,827	1,190	14,948	63,119
O-7	41,910	10,378	1,678	1,386	13,442	55,352
O-6	34,173	8,642	1,557	1,162	11,361	45,534
O-5	28,077	7,048	1,313	1,287	9,648	37,725
O-4	23,301	5,738	1,107	1,442	8,287	31,588
O-3	18,998	4,639	993	1,413	7,045	26,043
O-2	15,092	3,633	774	1,339	5,746	20,838
O-1	11,204	2,630	542	1,247	4,419	15,623
W-4	21,978	5,470	1,858	1,674	8,802	30,780
W-3	18,484	4,483	1,144	1,318	6,945	25,429
W-2	15,358	3,561	825	1,459	5,845	21,203
W-1	13,968	3,140	744	1,487	5,371	19,339
E-9	19,378	4,715	1,078	1,212	7,005	26,383
E-8	16,494	3,909	896	1,298	6,103	22,597
E-7	14,468	3,311	732	1,400	5,443	19,911
E-6	12,388	2,741	568	1,509	4,818	17,206
E-5	10,138	2,199	427	1,430	4,056	14,194
E-4	8,095	1,837	340	1,253	3,430	11,525
E-3	7,143	1,668	309	1,152	3,129	10,272
E-2	6,644	1,552	286	1,090	2,928	9,572
E-1	6,109	1,392	264	1,064	2,720	8,829

<sup>1</sup> Composed of government Social Security contribution, DIC, Death Gratuity, and Survivor Benefits.



MILITARY INTRAGRADE DIFFERENTIALS - BASIC PAY

[illegible]

MILITARY INTERGRADE DIFFERENTIALS - BASIC PAY

[illegible]

TABLE E

COST ESTIMATE OF EQUALIZING  
QUARTERS ALLOWANCES

<u>PAY GRADE</u>	<u>NUMBER OF PERSONNEL WITHOUT DEPENDENTS</u>	<u>ADDITIONAL COST TO EQUALIZE</u>	<u>TOTAL COST<sup>1</sup></u>
O-10	1	\$ 767	\$ 767
O-9	4	767	3,068
O-8	6	767	4,602
O-7	9	767	6,903
O-6	1,088	619	673,472
O-5	2,670	540	1,441,800
O-4	5,579	490	2,733,710
O-3	14,981	493	7,385,633
O-2	12,221	493	6,024,953
O-1	16,867	436	7,354,012
W-4	154	472	72,688
W-3	384	482	185,088
W-2	667	490	326,830
W-1	240	490	117,600
E-9	535	709	379,315
E-8	1,842	670	1,234,140
E-7	7,461	756	5,640,516
E-6	20,178	720	14,528,160
E-5	77,084	612	47,175,408
E-4	223,864	529	118,424,056
E-3	214,028	432	92,460,096
E-2	187,367	544	101,927,648
E-1	128,961	594	76,602,834
Total	916,191		\$ 484,703,299

<sup>1</sup> This assumes that all bachelors, including those on sea duty, would continue to forfeit the current without dependents BAQ rates.



TABLE G

COMPARISON OF CURRENT MONTHLY BASIC ALLOWANCE FOR QUARTERS (BAQ)  
WITH DEPENDENTS RATES WITH ALTERNATIVE INDICATORS OF HOUSING EXPENSES

Grade	Current BAQ Rates	Value of <sup>1</sup> Gov't Qtrs	Rental Expenses from NAVFAC Survey	FHA Median Housing Expenses (Home Owner)
0-9	\$319	\$486	\$ -	\$614
0-8	319	456	-	613
0-7	319	426	-	568
0-6	286	363	406	506
0-5	265	330	383	448
0-4	239	330	333	396
0-3	217	249	273	353
0-2	195	225	238	307
0-1	157	216	214	257
W-4	230	279	-	385
W-3	212	279	297	343
W-2	192	279	269	301
W-1	178	279	241	281
E-9	204	285	279	350
E-8	191	285	271	315
E-7	179	285	241	289
E-6	166	264	222	263
E-5	154	240	193	236
E-4	135	219	172	214
E-3	116	216	161	201
E-2	116	210	160	195
E-1	116	210	156	187

<sup>1</sup> Value of government quarters based on capital and operating costs.

TABLE H

COMPARISON OF BASIC ALLOWANCE FOR SUBSISTENCE (BAS)  
WITH ALTERNATIVE INDICATORS OF FOOD EXPENSES

	<u>DAILY RATE</u>
A. CURRENT CASH BAS RATES	
ENLISTED	\$2.53/DAY
OFFICER	\$1.74 DAY
B. RAW FOOD COST TO THE GOVERNMENT FOR FOOD SERVED IN GOVERNMENT MESSES	\$2.82/DAY
C. FOOD COST OF INDIVIDUAL SUBSISTING ON THE ECONOMY AS REPORTED BY THE BUREAU OF LABOR STATISTICS	\$2.89/DAY

TABLE I

COST IMPACT OF CONVERTING CURRENT PAYS AND ALLOWANCES  
SYSTEM TO A FULLY TAXABLE PAYS AND ALLOWANCES SYSTEM

(\$ Millions)

	<u>Current System</u>	<u>Fully Taxable System</u>	
I. Basic Pay	<u>\$16,243.6</u>	<u>\$16,243.6</u>	
II. BAQ	<u>3,073.9</u>	<u>4,064.9</u>	
A. Married BAQ	<u>2,670.3</u>	<u>3,114.8</u>	
Married Cash	<u>1,705.4</u>	<u>3,114.8</u>	
Married In-Kind	964.9	-	
Collections		964.9	
Net DoD Cost	1,705.4	2,149.9	
B. Bachelor BAQ	<u>403.6</u>	<u>950.1</u>	
Bachelor Cash	<u>154.7</u>	<u>950.1</u>	
Bachelor In-Kind	194.6	-	
Bachelor-In-Kind (at sea and remote)	54.3		
Collections		194.6	
Net DoD Cost	154.7	755.5	
III. BAS	<u>1,862.1</u>	<u>2,221.0</u>	
A. Married BAS (Cash)	<u>1,031.8</u>	<u>1,254.6</u>	
B. Single BAS	<u>830.3</u>	<u>966.4</u>	
Single Cash	<u>111.8</u>	<u>966.4</u>	
Single In-Kind	718.5	-	
Collections		503.6	
Net DoD Cost	1,143.6	1,717.4	
IV. Tax Advantage	<u>1,213.8</u>	-	
Total Military Equivalent Salary	\$22,393.4	\$22,529.5	\$+136.1
Total DoD Costs of Cash Elements of MES [Excludes In-Kind Allowances and Tax Advantage]	19,247.3	20,866.4	+1,619.1
Government Net Cash Outlay for MES	19,247.3	19,638.4	+391.1



TABLE J

COST IMPACT OF CONVERTING CURRENT PAYS AND ALLOWANCES  
SYSTEM TO A COMBINED PAYS AND ALLOWANCES AND SALARY SYSTEM

		(\$ Millions)	Combined System		
		Current System	Career Force	Non-Career Force	Total Force
I.	Basic Pay	\$16,243.6	14,296.9	5,799.2	20,096.1
II.	BAQ	3,073.9			
A.	Married BAQ	2,670.3		593.4	
	Married Cash	1,705.4		482.1	
	Married In-Kind	964.9		111.3	
	Collections		853.6	111.3	
	Net DoD Cost	1,705.4			
B.	Bachelor BAQ	403.6		255.8	
	Bachelor Cash	154.7		50.0	
	Bachelor In-Kind	194.6		160.9	
	Bachelor-In-Kind (at sea and remote)	54.3		44.9	
	Collections		33.7	160.9	
	Net DoD Cost	154.7			
III.	BAS	1,862.1		1,030.4	
A.	Married BAS (Cash)	1,031.8		334.0	
B.	Single BAS	830.3		694.4	
	Single Cash	111.8		45.0	
	Single In-Kind	718.5		651.4	
	Collections		19.5	651.4	
	Net DoD Cost	1,143.6		379.0	
IV.	Tax Advantage	1,213.8		417.6	
	Total Military Equivalent Salary	\$22,393.4	14,296.9	8,096.4	22,393.4
	Total DoD Costs of Cash Elements of MES [Excludes In-Kind Allowances and Tax Advantage]	19,247.3	13,389.9 <sup>1</sup>	6,755.2	20,145.2
	Government Net Cash Outlay for MES	19,247.3	12,593.7	6,755.2	19,348.9

<sup>1</sup> This number is Career Force Salary less collections for QIK and BAS. May not add due to rounding.

TABLE K

COST IMPACT OF CONVERTING CURRENT PAYS AND ALLOWANCES  
SYSTEM TO A MILITARY SALARY SYSTEM

(\$ Millions)

	<u>Current System</u>	<u>Salary System</u>	
I. Basic Pay	\$16,243.6	\$22,393.4	
II. <u>BAQ</u>	<u>3,073.9</u>		
A. Married BAQ	<u>2,670.3</u>		
Married Cash	1,705.4		
Married In-Kind	964.9		
Collections		964.9	
Net DoD Cost	1,705.4		
B. Bachelor BAQ	<u>403.6</u>		
Bachelor Cash	154.7		
Bachelor In-Kind	194.6		
Bachelor-In-Kind (at sea and remote)	54.3		
Collections		194.6	
Net DoD Cost	154.7		
III. <u>BAS</u>	<u>1,862.1</u>		
A. Married BAS (Cash)	<u>1,031.8</u>		
B. Single BAS	<u>830.3</u>		
Single Cash	111.8		
Single In-Kind	718.5		
Collections		503.6	
Net DoD Cost	1,143.6		
IV. Tax Advantage	<u>1,213.8</u>		
Total Military Equivalent Salary	\$22,393.4	\$22,393.4	-
Total DoD Costs of Cash Elements of MES [Excludes In-Kind Allowances and Tax Advantage]	19,247.3	20,730.3	+1,483.0
Government Net Cash Outlay for MES	19,247.3	19,516.5	+269.2

TABLE I

AVERAGE TOTAL GENERAL SCHEDULE COMPENSATION <sup>1</sup>

GRADE	AVERAGE SALARY	BENEFITS			TOTAL BENEFITS	TOTAL CIVILIAN <sup>2</sup> COMPENSATION
		RETIREMENT	OTHER <sup>2</sup>	HEALTH CARE		
GS-18	\$ 48,654	\$ 10,577	\$ 217	\$ 811	\$ 11,605	\$ 60,259
GS-17	45,907	9,980	217	811	11,008	56,915
GS-16	41,339	8,987	203	811	10,001	51,340
GS-15	35,871	7,798	175	811	8,784	44,655
GS-14	30,387	6,606	152	811	7,569	37,956
GS-13	25,870	5,624	129	811	6,564	32,434
GS-12	21,796	4,738	111	811	5,660	27,456
GS-11	18,331	3,985	97	811	4,893	23,224
GS-10	17,161	3,731	92	811	4,634	21,795
GS-9	15,107	3,284	83	811	4,178	19,285
GS-8	14,135	3,073	78	811	3,962	18,097
GS-7	12,367	2,689	69	811	3,569	15,936
GS-6	11,483	2,496	65	811	3,372	14,855
GS-5	10,117	2,199	60	811	3,070	13,187
GS-4	8,918	1,939	51	811	2,801	11,719
GS-3	7,607	1,654	46	811	2,511	10,118
GS-2	6,477	1,408	41	811	2,260	8,737
GS-1	5,651	1,229	37	811	2,077	7,728

<sup>1</sup> Without Executive Level V limit.<sup>2</sup> Life Insurance benefit.



TABLE M

TOTAL COMPENSATION COMPARISONS AT CIVIL SERVICE LINKAGE POINTS

LINKAGE GRADES	SALARY/MES	GENERAL SCHEDULE ONLY				TOTAL COMPENSATION
		BENEFITS			TOTAL BENEFITS	
		RETIREMENT	OTHER	HEALTH CARE		
E-3	\$ 7,143	\$ 1,668	\$ 309	\$ 1,152	\$ 3,129	\$ 10,272
GS-3	7,607	1,654	46	811	2,511	10,118
E-7	14,468	3,311	732	1,400	5,443	19,911
GS-7	12,367	2,689	69	811	3,569	15,936
O-1	11,204	2,630	542	1,247	4,419	15,623
GS-7	12,367	2,689	69	811	3,569	15,936
O-8	48,171	11,931	1,827	1,190	14,948	63,119
GS-18	48,654	10,577	217	811	11,605	60,259

TABLE N

## AVERAGE TOTAL COMPENSATION PARITY BASED ON LINKAGE TO GENERAL SCHEDULE

PAY GRADE	CURRENT TOTAL COMPENSATION	TOTAL NEEDED FOR COMPENSATION PARITY	DIFFERENCE	COMPENSATION FOR		NET AT 5%	DIFFERENCE AT 15%
				MILITARY FACTOR <sup>1</sup>			
O-10	\$ 79,185	\$ 76,809	\$ -2,376	\$ 3,058-9,174	\$ + 682	\$ + 682	\$ +6,798
O-9	70,634	68,032	-2,602	2,716-8,148	+ 114	+ 114	+5,546
O-8	63,119	60,259	-2,860	2,409-7,226	- 451	- 451	+4,366
O-7	55,352	55,800	+ 448	2,096-6,287	+2,544	+2,544	+6,735
O-6	45,534	47,997	+2,463	1,709-5,126	+4,172	+4,172	+7,589
O-5	37,725	39,296	+1,571	1,404-4,212	+2,975	+2,975	+5,783
O-4	31,588	31,936	+ 348	1,165-3,495	+1,513	+1,513	+3,843
O-3	26,043	25,763	- 280	950-2,850	+ 670	+ 670	+2,570
O-2	20,838	20,467	- 371	755-2,264	+ 384	+ 384	+1,893
O-1	15,623	15,936	+ 313	560-1,681	+ 873	+ 873	+1,994
E-9	26,383	19,285	-7,098	969-2,907	-6,129	-6,129	-4,191
E-8	22,597	18,097	-4,500	825-2,474	-3,675	-3,675	-2,026
E-7	19,911	15,936	-3,975	723-2,170	-3,252	-3,252	-1,805
E-6	17,206	14,855	-2,351	619-1,858	-1,732	-1,732	- 493
E-5	14,194	13,187	-1,007	507-1,521	- 500	- 500	+ 514
E-4	11,525	11,719	+ 194	405-1,214	+ 599	+ 599	+1,408
E-3	10,272	10,118	- 154	357-1,071	+ 203	+ 203	+ 917
E-2	9,572	8,737	- 835	332- 997	- 503	- 503	+ 162
E-1	8,829	7,728	-1,101	305- 915	- 796	- 796	- 186
2	A	B	C	D	E	F	G

<sup>1</sup> Assumed 5-15% of current RMC.

2B-A=C

C+D=F

C+E=G

TABLE O

AGGREGATE TOTAL COMPENSATION IMPACT OF PARITY WITH GENERAL SCHEDULE<sup>1</sup>

GRADE	MILITARY MAN YEARS	ADJUSTMENT IN COMPENSATION NEEDED FOR PARITY	TOTAL COMP. DIFFERENCE	ADJUSTMENT AT 5% X-FACTOR	TOTAL COMP. DIFFERENCE	ADJUSTMENT AT 15% X-FACTOR	TOTAL COMP. DIFFERENCE
O-10	36	\$ -2,376	\$ - 85,536	\$ + 682	\$ + 24,552	\$ +6,798	\$+ 244,728
O-9	124	-2,602	- 322,648	+ 114	+ 14,136	+5,546	+ 687,704
O-8	432	-2,860	- 1,235,520	- 451	- 194,832	+4,366	+ 1,886,112
O-7	567	+ 448	+ 254,016	+2,544	+ 1,442,448	+6,735	+ 3,818,745
O-6	14,530	+2,463	+ 35,787,390	+4,172	+ 60,619,160	+7,589	+110,268,170
O-5	32,958	+1,571	+ 51,777,018	+2,975	+ 78,050,050	+5,783	+190,596,114
O-4	53,848	+ 348	+ 18,737,104	+1,513	+ 81,472,024	+3,843	+206,937,864
O-3	95,008	- 280	- 26,602,240	+ 670	+ 63,655,360	+2,570	+244,170,560
O-2	38,349	- 371	- 14,227,479	+ 384	+ 14,726,016	+1,893	+ 72,594,657
O-1	32,219	+ 313	+ 10,084,547	+ 873	+ 28,127,187	+1,994	+ 64,244,686
Total Officers			+ 74,168,652		+327,936,101		+895,449,340
E-9	13,477	-7,098	- 95,659,746	-6,129	- 82,600,533	-4,191	- 56,482,107
E-8	34,413	-4,500	-154,858,500	-3,675	-126,467,775	-2,026	- 69,720,738
E-7	120,751	-3,975	-479,985,225	-3,252	-392,682,252	-1,805	-217,955,555
E-6	213,240	-2,351	-501,327,240	-1,732	-369,331,680	- 493	-105,127,320
E-5	319,351	-1,007	-321,586,457	- 550	-159,675,500	+ 514	-164,146,414
E-4	417,873	+ 194	+ 81,067,362	+ 599	+250,305,927	+1,408	-588,365,184
E-3	316,398	- 154	- 48,725,292	+ 203	+ 64,228,794	+ 917	-290,136,966
E-2	239,915	- 835	-200,329,025	- 503	-120,677,245	+ 162	- 38,866,230
E-1	140,888	-1,101	-155,117,688	- 796	-112,146,848	- 186	- 26,205,168
Total Enlisted			-1,876,521,811		-1,049,047,112		+606,023,906
TOTAL			-1,802,353,159		- 721,111,011		+1,501,473,246
			- \$ 1.8 Billion		- \$ .7 Billion		+ \$ 1.5 Billion

<sup>1</sup> Does not include estimate for Warrant Officers.

TABLE P

TOTAL COMPENSATION COMPARISONS AT CIVIL SERVICE LINKAGE POINTS  
GENERAL SCHEDULE/WAGE GRADE MIX

Linkage Grades	Salary/ MES	Benefits				Total Compensation
		Retirement	Other	Health Care	Total Benefits	
E-3 Civilian <sup>1</sup>	\$ 7,143 9,493	\$ 1,668 2,064	\$ 309 55	\$ 1,152 811	\$ 3,129 2,930	\$ 10,272 12,423
E-7 Civilian <sup>2</sup>	14,468 14,631	3,311 3,181	732 78	1,400 811	5,443 4,070	19,911 18,701
O-1 Civilian (GS-7)	11,204 12,367	2,630 2,689	542 69	1,247 811	4,419 3,569	15,623 15,936
O-8 Civilian (GS-18)	48,171 48,654	11,931 10,577	1,827 217	1,190 811	14,948 11,605	63,119 60,259

<sup>1</sup> Average salary of white collar (13% of way between GS-3 and GS-5) and blue collar (79% of way between WG-5 and WG-6). Distribution assumption for calculating average was 45% white collar and 55% blue collar.

<sup>2</sup> Average salary of white collar (18% of way between GS-7 and GS-9) and blue collar (24% of way between WS-9 and WS-10). Distribution assumption for calculating average was 51% white collar and 49% blue collar.



TABLE Q

TOTAL COMPENSATION PARITY BASED ON LINKAGE TO CIVIL SERVICE

GENERAL SCHEDULE/WAGE GRADE MIX<sup>1</sup>

<u>Pay Grade</u>	<u>Current Total Compensation</u>	<u>Total Needed For Compensation Parity</u>	<u>Difference</u>	<u>Compensation for Military Factor <sup>2</sup>/</u>	<u>Net Difference At 5% At 15%</u>
E-9	\$ 26,383	\$22,646	\$ -3,737	\$969-2,907	\$ -2,768 \$ -830
E-8	22,597	21,244	-1,353	825-2,474	-528 +1,121
E-7	19,911	18,701	-1,210	723-2,170	-487 +960
E-6	17,206	17,591	+385	619-1,858	+1,004 +2,243
E-5	14,194	15,752	+1,558	507-1,521	+2,065 +3,079
E-4	11,525	14,170	+2,645	405-1,214	+3,050 +3,859
E-3	10,272	12,423	+2,151	357-1,071	+2,508 +3,222
E-2	9,572	10,728	+1,156	332-997	+1,488 +2,153
E-1	8,829	9,485	+656	305-915	+961 +1,571

<sup>1</sup>/ Only enlisted is shown since officer linkage is the same as linkage to General Schedule (Table N).

<sup>2</sup>/ Assumes 5-15% of Current RMC.

TABLE R

TOTAL COMPENSATION IMPACT OF LINKAGE TO CIVIL SERVICE <sup>1</sup>

## GENERAL SCHEDULE/WAGE GRADE MIX

Grade	Military Man Years	Adjustment in Compensation Needed for Parity	Total Comp. Difference	Adjustment at 5% X-Factor	Total Comp. Difference	Adjustment at 15% X-Factor	Total Comp. Difference
E-9	13,477	\$ -3,737	\$- 50,363,549	\$ -2,768	\$ - 37,304,336	\$ - 830	\$ - 11,185,910
F-8	34,413	-1,353	- 46,560,789	- 528	- 18,170,064	+1,121	+ 38,576,973
E-7	120,751	-1,210	- 146,108,710	- 487	- 58,805,737	+ 960	+ 115,920,960
E-6	213,240	+ 385	+ 82,097,400	+1,004	+ 214,092,960	+2,243	+ 478,297,320
E-5	319,351	+1,558	+ 497,548,858	+2,065	+ 659,459,815	+3,079	+ 983,281,729
E-4	417,873	+2,645	+1,105,274,085	+3,050	+1,274,512,650	+3,859	+1,612,571,907
E-3	316,398	+2,151	+ 680,572,098	+2,508	+ 793,526,184	+3,222	+1,019,434,356
E-2	239,915	+1,156	+ 277,341,740	+1,488	+ 356,993,520	+2,153	+ 516,536,995
E-1	140,888	+ 656	+ 92,422,528	+ 961	+ 135,393,360	+1,571	+ 221,335,048
Total Enlisted			+2,492,223,661		+3,319,698,352		+4,974,769,378
Total Officers (From Table O)			+ 74,168,652		+ 327,936,101		+ 895,449,340
TOTAL			+2,566,392,313		+3,647,634,453		+5,870,218,718
			\$ + 2.6 billion		\$ + 3.6 billion		\$ + 5.9 billion

<sup>1</sup> Does not include estimate for  
Warrant Officers.

TABLE S

COMPARISON OF COST IMPACT OF ALTERNATIVE  
COMPENSATION SYSTEMS AT PARITY WITH CURRENT SYSTEM <sup>3</sup>

(\$ Millions)

	Total Compensation Value Adjustments	DoD Compensation Cost Adjustment	Government Cost Adjustment <sup>1</sup>
<u>Competitive Systems</u>			
Modified Pays and Allowances	0	0	0
Fully Taxable Pays and Allowances	136.1	1,619.1	391.1
Combined System	0	897.8	101.6
Salary System	0	1,483.0	269.2
<u>Comparability Systems, GS Link <sup>2</sup></u>			
Modified Pays and Allowances	-1,802.4	-1,802.4	-1,680.5
Fully Taxable Pays and Allowances	-1,666.3	-183.3	-1,263.9
Combined System	-1,802.4	-904.6	-1,550.3
Salary System	-1,802.4	-319.4	-1,377.3
<u>Comparability Systems, GS/WG Link <sup>2</sup></u>			
Modified Pays and Allowances	+2,566.4	+2,566.4	+2,392.9
Fully Taxable Pays and Allowances	+2,702.5	+4,185.5	+2,718.4
Combined System	+2,566.4	+3,464.2	+2,432.0
Salary System	+2,566.4	+4,049.4	+2,608.5

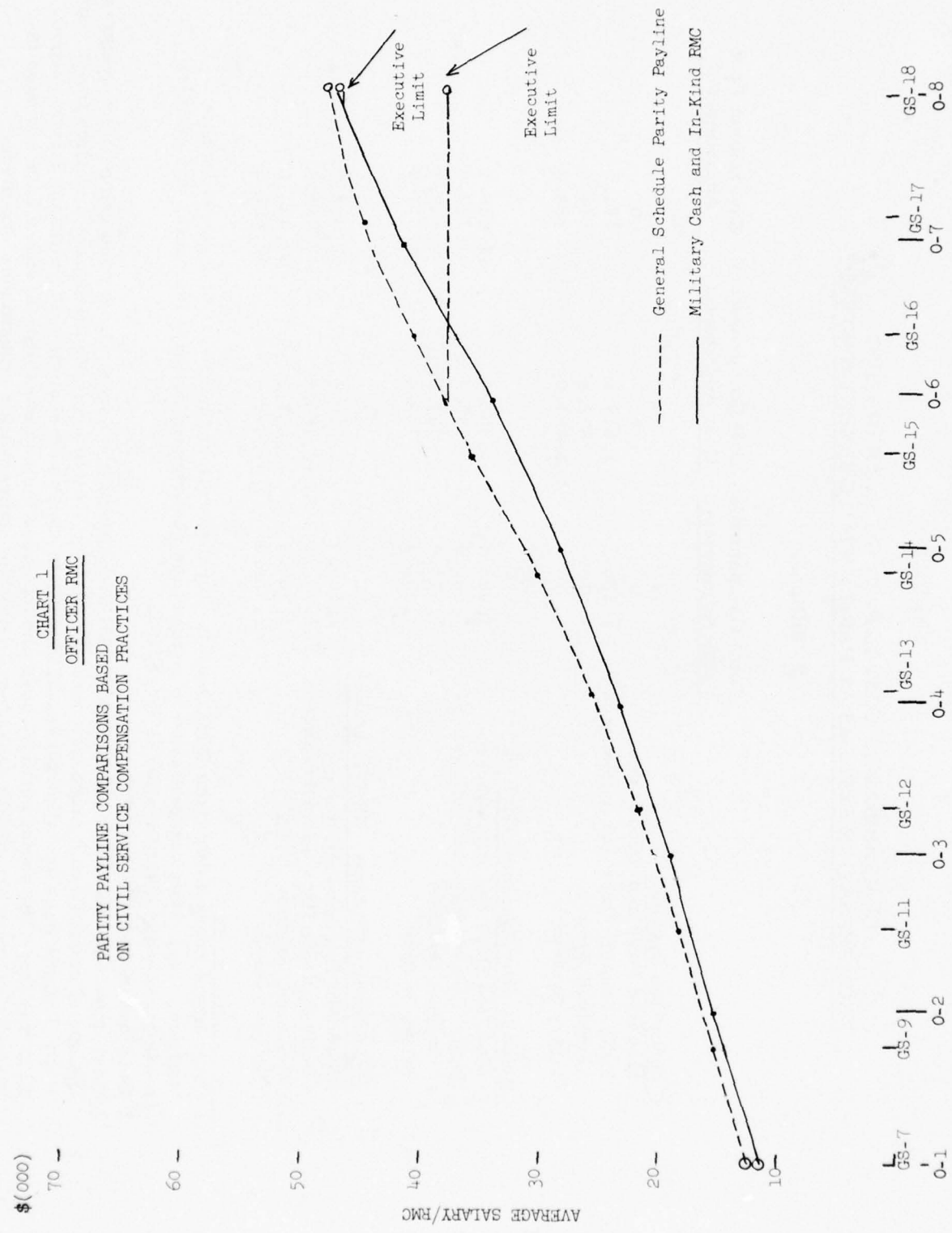
<sup>1</sup> Government costs differ from DOD costs in that they reflect the effects of Federal income taxation, i.e., when compensation is reduced the government collects less taxes and collects more taxes when compensation is increased.

<sup>2</sup> Does not include "X-Factor".

<sup>3</sup> Cost impact in table does not include Social Security cost changes. Under the competitive systems the social security cost increases over the current system are: Modified pays and allowances, none; Fully Taxable pays and allowances, \$115 million; Combined system, \$113 million; Salary system, \$290 million. The social security cost impact under the comparability systems have not been included since they are highly dependent on how the compensation adjustments are made.

CHART 1  
OFFICER RMC

PARTY PAYLINE COMPARISONS BASED  
ON CIVIL SERVICE COMPENSATION PRACTICES





\$(000)

35 -

30 -

25 -

20 -

15 -

10 -

5 -

AVERAGE SALARY/RMC

CHART 2  
ENLISTED RMC  
PARITY PAYLINE COMPARISONS BASED ON  
CIVIL SERVICE COMPENSATION PRACTICES

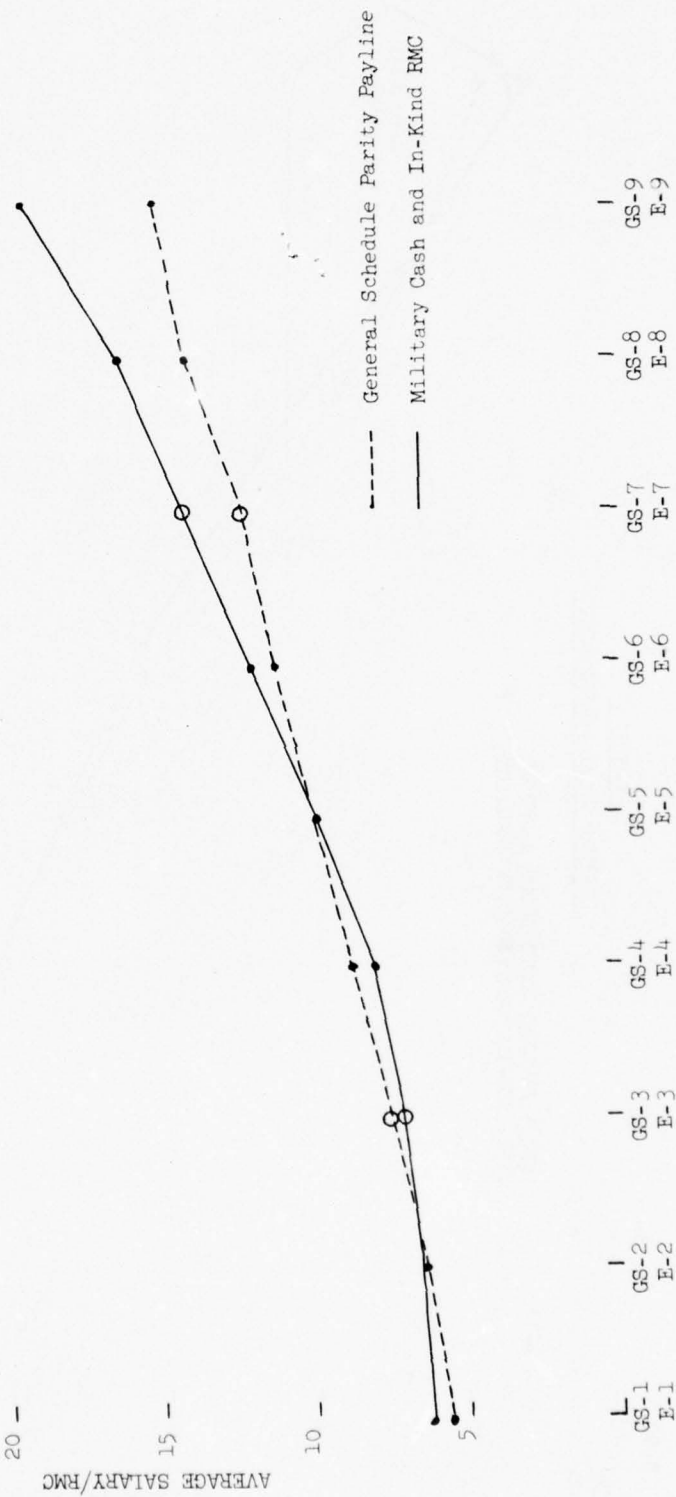
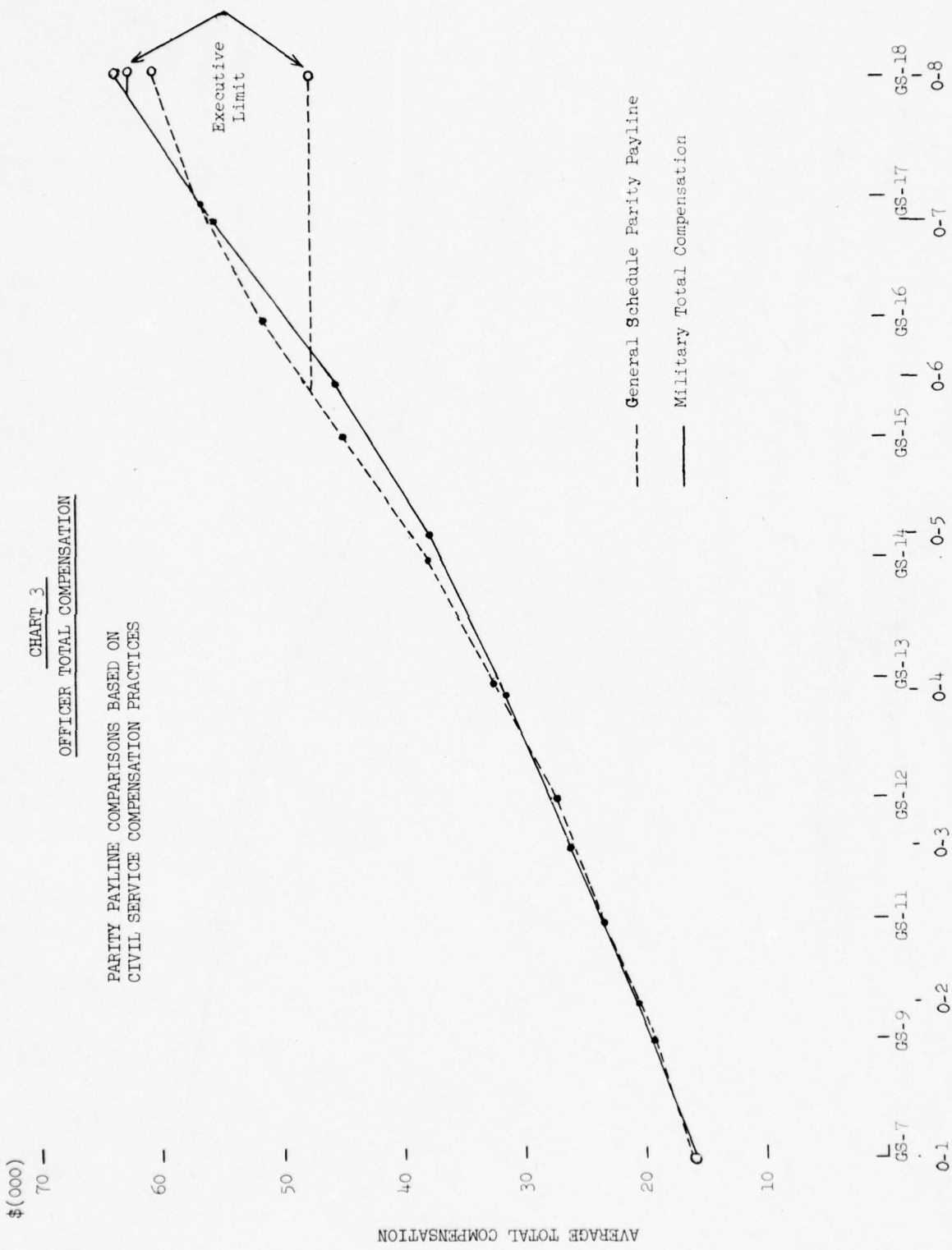


CHART 3  
OFFICER TOTAL COMPENSATION



\$(000)

35 -

30 -

25 -

20 -

15 -

10 -

5 -

AVERAGE TOTAL COMPENSATION

CHART 4  
ENLISTED TOTAL COMPENSATION

PARITY PAYLINE COMPARISONS BASED ON  
CIVIL SERVICE COMPENSATION PRACTICES

--- PARITY PAYLINE  
— MILITARY TOTAL COMPENSATION

GS-1 E-1	GS-2 E-2	GS-3 E-3	GS-4 E-4	GS-5 E-5	GS-6 E-6	GS-7 E-7	GS-8 E-8	GS-9 E-9
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Appendix "A"

(16 Tables)



# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

E-3 < 2 Married Family Size 2 Receiving Cash Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income <sup>2</sup>	Discre- tionary <sup>1</sup> Income
Current System	\$5,018	\$1,393	\$ 923	\$463	7,797	\$233	\$294	\$6,809	\$6,809
<u>Modified</u>									
Competitive	\$3,713	\$2,592	1,029	696	8,030	44	217	\$7,073	\$7,073
GS Comparability	3,787	2,592	1,029	700	8,108	54	222	7,132	7,132
GS/WG Comparability	5,398	2,592	1,029	787	9,806	290	316	8,413	8,413
<u>Fully Taxable</u>									
Competitive	\$5,018	1,932	1,055	-	8,005	735	468	6,802	6,802
GS Comparability	4,642	1,932	1,055	-	7,629	664	446	6,519	6,519
GS/WG Comparability	6,276	1,932	1,055	-	9,263	974	542	7,747	7,747
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
<u>Salary</u>									
Competitive	-	-	-	-	6,966	541	408	6,017	6,017
GS Comparability	-	-	-	-	6,746	505	395	5,846	5,846
GS/WG Comparability	-	-	-	-	8,996	923	526	7,547	7,547

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.

<sup>2</sup>Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

E-3 < 2 Married Family Size 2 Receiving In-Kind Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income <sup>2</sup>	Discre- tionary <sup>1</sup> Income
Current System	\$5018	\$2592	\$923	\$744	\$9278	\$233	\$294	\$8006	\$5414
Modified									
Competitive	\$3713	2592	1029	696	8030	44	217	7073	4481
GS Comparability	3787	2592	1029	700	8108	54	222	7132	4540
GS/WG Comparability	5398	2592	1029	787	9306	290	316	8413	5821
Fully Taxable									
Competitive	\$5018	1932 <sup>4</sup>	1055	-	\$8005	735	468	6802	\$4210
GS Comparability	4642	1932	1055	-	7629	664	446	6519	3927
GS/WG Comparability	6276	1932	1055	-	9263	974	542	7747	5155
Combined									
Competitive									
GS Comparability									
GS/WG Comparability									
Salary									
Competitive	-	-	-	-	6966	541	408	6017	3425
GS Comparability	-	-	-	-	6746	505	395	5846	3254
GS/WG Comparability	-	-	-	-	8996	923	526	7547	4955

SAME AS MODIFIED SYSTEM

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.  
<sup>2</sup>Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable;  
less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

## E-3 < 2 Bachelor Receiving Cash Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$5018	\$961	\$923	\$467	\$7369	\$437	\$293	\$6172	\$6172
Modified Competitive	3713	961	1029	449	6152	203	217	5283	5283
GS Comparability	3787	961	1029	452	6229	215	222	5340	5340
GS/WG Comparability	5398	961	1029	505	7893	509	316	6563	6563
Fully Taxable Competitive	\$5018	\$961	\$1055	-	\$7034	\$834	\$411	\$5789	\$5789
GS Comparability	4642	961	1055	-	6658	755	389	5514	5514
GS/WG Comparability	6276	961	1055	-	8292	1098	485	6709	6709
Combined Competitive	-	-	-	-	-	-	-	-	-
GS Comparability	-	-	-	-	-	-	-	-	-
GS/WG Comparability	-	-	-	-	-	-	-	-	-
Salary Competitive	-	-	-	-	\$6966	\$819	\$408	\$5739	\$5739
GS Comparability	-	-	-	-	6746	773	395	5578	5578
GS/WG Comparability	-	-	-	-	8996	1265	526	7205	7205

SAME AS MODIFIED SYSTEM

1 Cash pay less forfeitures for housing and subsistence and taxes as applicable.

2 Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

## E-3 < 2 Bachelor Receiving In-Kind Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$5,018	\$292	\$ 923	\$289	\$6,522	\$437	\$294	\$5,502	\$4,287
Modified									
Competitive	3,713	961 <sup>4</sup>	1,029	449	6,152	203	217	5,283	4,068
GS Comparability	3,787	961	1,029	452	6,229	215	222	5,340	4,125
GS/WG Comparability	5,398	961	1,029	505	7,893	509	316	6,563	5,348
Fully Taxable									
Competitive	\$5,018	961	\$1,055	-	\$7,034	834	411	5,789	4,574
GS Comparability	4,642	961	1,055	-	6,658	755	389	5,514	4,299
GS/WG Comparability	6,276	961	1,055	-	8,292	1,098	485	6,709	5,494
Combined									
Competitive									
GS Comparability									
GS/WG Comparability									
SAME AS MODIFIED SYSTEM									
Salary									
Competitive	-	-	-	-	\$6,966	819	408	5,739	4,524
GS Comparability	-	-	-	-	6,746	773	395	5,578	4,363
GS/WG Comparability	-	-	-	-	8,996	1,265	526	7,205	5,990

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.

<sup>2</sup>Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).



# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

E-7>18 Married Family Size 4 Receiving Cash Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income <sup>2</sup>	Discre- tionary Income <sup>1</sup>
Current System	\$10404	\$2146	\$923	\$667	\$14140	\$906	\$608	\$11959	\$11959
<u>Modified</u>									
Competitive	9024	3420	1029	989	14462	644	528	12301	12301
GS Comparability	6305	3420	1029	952	11706	201	369	10184	10184
GS/WG Comparability	8295	3420	1029	979	13723	517	485	11742	11742
<u>Fully Taxable</u>									
Competitive	\$10404	\$2892	\$1055	-	\$14351	\$1612	\$840	\$11899	\$11899
GS Comparability	7641	2892	1055	-	11588	1131	678	9779	9779
GS/WG Comparability	9649	2892	1055	-	13596	1473	795	11328	11328
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
Salary									
Competitive					\$14569	\$1652	\$852	\$12060	\$12060
GS Comparability					10566	916	618	9032	9032
GS/WG Comparability					13351	1427	781	11143	11143

SAME AS SALARY

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.

<sup>2</sup>Sum of: Basic Pay; D/O and EAT (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

E-7 > 18 Married Family Size 4 Receiving In-Kind Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$10404	\$3420	\$923	\$956	\$15703	\$906	\$608	\$13233	\$9813
Modified									
Competitive	9024	3420	1029	989	14462	644	528	12301	8881
GS Comparability	6305	3420	1029	952	11706	201	369	10184	6764
GS/WG Comparability	8295	3420	1029	979	13723	517	485	11742	8322
Fully Taxable									
Competitive	\$10404	\$2892	\$1055	-	\$14351	\$1612	\$840	\$11899	8479
GS Comparability	7641	2892	1055	-	11588	1131	678	9779	6359
GS/WG Comparability	9649	2892	1055	-	13596	1473	795	11328	7908
Combined									
Competitive									
GS Comparability									
GS/WG Comparability									
Salary									
Competitive	-	-	-	-	\$14569	\$1652	\$852	12065	8645
GS Comparability	-	-	-	-	10566	916	618	9032	5612
GS/WG Comparability	-	-	-	-	13351	1427	781	11143	7723

SAME AS SALARY

1 Cash pay less forfeitures for housing and subsistence and taxes as applicable.

2 Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

## E-7> 18 Bachelor Receiving Cash Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income <sup>2</sup>	Discre- tionary <sup>1</sup> Income
Current System	\$10,404	\$1,390	\$ 923	\$626	\$12,343	\$1,537	\$608	\$10,522	\$10,522
<u>Modified</u>									
Competitive	9,024	1,390	1,029	672	12,119	1,272	528	9,643	9,643
GS Comparability	6,305	1,390	1,029	682	9,406	681	369	7,674	7,674
GS/WG Comparability	8,295	1,390	1,029	701	11,415	1,098	485	9,131	9,131
<u>Fully Taxable</u>									
Competitive	10,404	1,390	1,055	-	12,849	2,102	752	9,995	9,995
GS Comparability	7,641	1,390	1,055	-	10,086	1,523	590	7,973	7,973
GS/WG Comparability	9,649	1,390	1,055	-	12,094	1,942	707	9,445	9,445
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
SAME AS SALARY									
<u>Salary</u>									
Competitive					14,569	2,500	852	11,217	11,217
GS Comparability					10,566	1,621	618	8,327	8,327
GS/WG Comparability					13,351	2,216	781	10,354	10,354

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.

<sup>2</sup>Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

## E-7> 18 Bachelor Receiving In-Kind Allowances

	<u>Basic Pay</u>	<u>BAQ</u>	<u>BAS</u>	<u>Tax Adv.</u>	<u>RMC</u>	<u>FIT</u>	<u>SST</u>	<u>Equivalent Disposable Income 2</u>	<u>Discre- tionary 1 Income</u>
Current System	\$10,404	\$ 648	\$ 923	\$418	\$12,393	\$1,587	\$608	\$ 9,780	\$8,209
<u>Modified</u>									
Competitive	9,024	1,390	1,029	676	12,119	1,272	528	9,643	8,072
GS Comparability	6,305	1,390	1,029	682	9,406	681	369	7,674	6,103
GS/WG Comparability	8,295	1,390	1,029	701	11,415	1,098	485	9,131	7,560
<u>Fully Taxable</u>									
Competitive	\$10,404	\$1,390	\$1,055	-	\$12,849	\$2,102	\$752	\$ 9,995	8,424
GS Comparability	7,641	1,390	1,055	-	10,086	1,523	590	7,973	6,402
GS/WG Comparability	9,649	1,390	1,055	-	12,094	1,942	707	9,445	7,874
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
<u>Salary</u>									
Competitive					\$14,569	\$2,500	\$852	\$11,217	9,646
GS Comparability					10,566	1,621	618	8,327	6,756
GS/WG Comparability					13,351	2,216	781	10,354	8,783

1 Cash pay less forfeitures for housing and subsistence and taxes as applicable.

2 Sum of: Basic Pay; BAO and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).



# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

O-2> 2 Married Family Size 3 Receiving Cash Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$10,058	\$2,336	\$ 637	\$ 675	\$12,706	\$ 983	588	11,460	11,460
Modified									
Competitive	9,302	2,700	1,029	852	13,883	839	544	11,648	11,648
GS Comparability	9,110	2,700	1,029	853	13,692	802	533	11,504	11,504
GS/WG Comparability	9,110	2,700	1,029	853	13,692	802	533	11,504	11,504
Fully Taxable									
Competitive	10,058	2,568	1,055	-	13,681	1,653	800	11,228	11,228
GS Comparability	9,870	2,568	1,055	-	13,493	1,618	789	11,086	11,086
GS/WG Comparability	8,870	2,568	1,055	-	13,493	1,618	789	11,086	11,086
Combined									
Competitive	-	-	-	-	-	-	-	-	-
GS Comparability	-	-	-	-	-	-	-	-	-
GS/WG Comparability	-	-	-	-	-	-	-	-	-
Salary									
Competitive	-	-	-	-	13,528	1,625	791	11,112	11,112
GS Comparability	-	-	-	-	13,193	1,563	772	10,858	10,858
GS/WG Comparability	-	-	-	-	13,193	1,563	772	10,858	10,858

1Cash pay less forfeitures for housing and subsistence and taxes as applicable.

2Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

O-2> 2 Married Family Size 3 Receiving In-Kind Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income <sup>2</sup>	Discre- tionary <sup>1</sup> Income
Current System	\$10058	\$2700	\$637	\$758	\$14153	\$983	\$588	\$11824	\$9124
<u>Modified</u>									
Competitive	9302	2700	1029	852	13883	839	544	11648	8948
GS Comparability	9110	2700	1029	853	13692	802	533	11504	8804
GS/WG Comparability	9110	2700	1029	853	13692	802	533	11504	8804
<u>Fully Taxable</u>									
Competitive	\$10058	\$2568	\$1055	-	\$13681	\$1653	\$800	\$11228	\$8528
GS Comparability	9870	2568	1055	-	13493	1618	789	11086	8386
GS/WG Comparability	9870	2568	1055	-	13493	1618	789	11086	8386
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
<u>Salary</u>									
Competitive					\$13528	\$1625	\$791	\$11122	\$8422
GS Comparability					13193	1563	772	10858	8158
GS/WG Comparability					13193	1563	772	10858	8158

SAME AS SALARY

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.  
<sup>2</sup>Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable;  
less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

## O-2 > 2 Bachelor Receiving Cash Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income <sup>2</sup>	Discre- tionary <sup>1</sup> Income
Current System	\$10,058	\$1,843	\$ 637	\$ 664	\$13,202	\$1,518	\$ 588	\$10,432	\$10,432
Modified									
Competitive	9,302	1,843	1,029	789	12,963	1,338	544	10,292	10,292
GS Comparability	9,110	1,843	1,029	793	12,775	1,292	533	10,157	10,157
GS/WG Comparability	9,110	1,843	1,029	793	12,775	1,292	533	10,157	10,157
Fully Taxable									
Competitive	10,058	1,843	1,055	-	12,956	2,126	758	10,072	10,072
GS Comparability	9,870	1,843	1,055	-	12,768	2,084	747	9,937	9,937
GS/WG Comparability	9,870	1,843	1,055	-	12,768	2,084	747	9,937	9,937
Combined									
Competitive									
GS Comparability									
GS/WG Comparability									
SAME AS SALARY									
Salary									
Competitive					\$13,528	\$1,625	\$791	\$11,122	\$11,122
GS Comparability					13,193	1,563	772	10,858	10,858
GS/WG Comparability					13,193	1,563	772	10,858	10,858

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.

<sup>2</sup>Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

## O-2 > 2 Bachelor Receiving In-Kind Allowance

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$10,058	\$774	\$637	\$371	\$11,840	\$1,518	\$588	\$9,363	\$8,589
Modified									
Competitive	9,302	1,843	1,029	789	12,963	1,338	544	10,292	9,518
GS Comparability	9,110	1,843	1,029	793	12,775	1,292	533	10,157	9,383
GS/WG Comparability	9,110	1,843	1,029	793	12,775	1,292	533	10,157	9,383
Fully Taxable									
Competitive	\$10,058	\$1,843	\$1,055	-	\$12,956	\$2,126	\$758	\$10,072	9,298
GS Comparability	9,870	1,843	1,055	-	12,768	2,084	747	9,937	9,163
GS/WG Comparability	9,870	1,843	1,055	-	12,768	2,084	747	9,937	9,163
Combined									
Competitive									
GS Comparability									
GS/WG Comparability									
Salary									
Competitive					\$13,528	1,625	791	\$11,122	10,348
GS Comparability					13,193	1,563	772	10,858	10,084
GS/WG Comparability					13,193	1,563	772	10,858	10,084

1 Cash pay less forfeitures for housing and subsistence and taxes as applicable.

2 Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).



# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

O-5> 20 Married Family Size 4 Receiving Cash Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$22,950	\$3,175	\$ 637	\$1,638	\$28,400	\$3,638	\$895	\$22,299	\$22,299
<u>Modified</u>									
Competitive	21,773	3,960	1,029	2,123	28,885	3,308	895	22,559	22,559
GS Comparability	22,845	3,960	1,029	2,212	30,046	3,609	895	23,330	23,330
GS/WG Comparability	22,845	3,960	1,029	2,212	30,046	3,609	895	23,330	23,330
<u>Fully Taxable</u>									
Competitive	\$22,950	\$4,596	\$1,055	-	\$28,601	\$5,340	\$895	\$22,366	22,366
GS Comparability	24,214	4,596	1,055	-	29,865	5,755	895	23,215	23,215
GS/WG Comparability	24,214	4,596	1,055	-	29,865	5,755	895	23,215	23,215
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
<u>Salary</u>									
Competitive					\$28,552	\$5,325	\$895	\$22,332	22,332
GS Comparability					30,133	5,852	895	23,386	23,386
GS/WG Comparability					30,133	5,852	895	23,386	23,386

1 Cash pay less forfeitures for housing and subsistence and taxes as applicable.

2 Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

O-5> 20 Married Family Size 4 Receiving In-Kind Allowance

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$22,950	\$3,960	\$ 637	\$2,007	\$29,554	\$3,638	\$895	\$23,014	\$19,054
<u>Modified</u>									
Competitive	21,773	3,960	1,029	2,123	28,885	3,308	895	22,559	18,599
GS Comparability	22,845	3,960	1,029	2,212	30,046	3,609	895	23,330	19,370
GS/WG Comparability	22,845	3,960	1,029	2,212	30,046	3,609	895	23,330	19,370
<u>Fully Taxable</u>									
Competitive	\$22,950	\$4,596	\$1,055	-	\$28,601	\$5,340	\$895	\$22,366	\$18,406
GS Comparability	24,214	4,596	1,055	-	29,865	5,755	895	23,215	19,255
GS/WG Comparability	24,214	4,596	1,055	-	29,865	5,755	895	23,215	19,255
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
<u>Salary</u>									
Competitive					\$28,552	\$5,325	\$895	\$22,332	\$18,372
GS Comparability					30,133	5,852	895	23,386	19,426
GS/WG Comparability					30,133	5,852	895	23,386	19,426

<sup>1</sup>Cash pay less forfeitures for housing and subsistence and taxes as applicable.

<sup>2</sup>Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

O-5 > 20 Bachelor Receiving Cash Allowance

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income <sup>2</sup>	Discre- tionary <sup>1</sup> Income
Current System	\$22,950	\$2,635	\$637	\$2,108	\$28,330	\$5,194	\$895	\$20,133	\$20,133
Modified									
Competitive	21,773	2,635	1,029	2,291	27,728	4,770	895	19,772	19,772
GS Comparability	22,845	2,635	1,029	2,362	28,871	5,156	895	20,458	20,458
GS/WG Comparability	22,845	2,635	1,029	2,362	28,871	5,156	895	20,458	20,458
Fully Taxable									
Competitive	22,950	\$2,635	\$1,055	-	26,640	\$6,626	\$895	19,119	19,119
GS Comparability	24,214	2,635	1,055	-	27,904	7,132	895	19,877	19,877
GS/WG Comparability	24,214	2,635	1,055	-	27,904	7,132	895	19,877	19,877
Combined									
Competitive									
GS Comparability									
GS/WG Comparability									
Salary									
Competitive					28,552	7,391	895	20,226	20,226
GS Comparability					30,133	8,077	895	21,161	21,161
GS/WG Comparability					30,133	8,077	895	21,161	21,161

<sup>1</sup> Cash pay less forfeitures for housing and subsistence and taxes as applicable.

<sup>2</sup> Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable; less federal income and social security taxes).

# SELECTED EXAMPLE COMPARISONS UNDER ALTERNATIVE COMPENSATION SYSTEMS

O-5> 20 Bachelor Receiving In-Kind Allowances

	Basic Pay	BAQ	BAS	Tax Adv.	RMC	FIT	SST	Equivalent Disposable Income 2	Discre- tionary 1 Income
Current System	\$22,950	\$ 979	\$ 637	\$1,004	\$25,570	\$5,194	\$895	\$18,477	\$17,498
<u>Modified</u>									
Competitive	21,773	2,635	1,029	2,291	27,728	4,770	895	19,772	18,793
GS Comparability	22,845	2,635	1,029	2,362	28,871	5,156	895	20,458	19,479
GS/WG Comparability	22,845	2,635	1,029	2,362	28,871	5,156	895	20,458	19,479
<u>Fully Taxable</u>									
Competitive	\$22,950	\$2,635	\$1,055	-	\$26,640	\$6,626	\$895	\$19,119	18,140
GS Comparability	24,214	2,635	1,055	-	27,904	7,132	895	19,877	18,898
GS/WG Comparability	24,214	2,635	1,055	-	27,904	7,132	895	19,877	18,898
<u>Combined</u>									
Competitive									
GS Comparability									
GS/WG Comparability									
<u>Salary</u>									
Competitive					\$28,552	\$7,391	\$895	\$20,226	19,247
GS Comparability					30,133	8,077	895	21,161	20,182
GS/WG Comparability					30,133	8,077	895	21,161	20,182

SAME AS SALARY

1Cash pay less forfeitures for housing and subsistence and taxes as applicable.  
2Sum of: Basic Pay; BAQ and BAS (or quarters and subsistence in kind where applicable;  
less federal income and social security taxes).



MILITARY EQUIVALENT SALARY

A Staff Research Paper  
Prepared For  
The Third Quadrennial Review  
Of Military Compensation

17 July 1976

# THIRD QUADRENNIAL REVIEW OF MILITARY COMPENSATION STAFF RESEARCH PAPER

## MILITARY EQUIVALENT SALARY (MES)

### INTRODUCTION

The QRMC will compare military compensation with compensation of other groups of employees in the private and public sectors of the economy including the Federal Civil Service. In order for the QRMC to make comparisons with civilian salaries, those elements of the current military pays and allowances system which constitute a military equivalent of civilian salary must be identified. Under a pays and allowances system the items that constitute a military equivalent of salary need to be identified in order to make comparisons with civilian salaries and to enable conclusions to be drawn about the adequacy of those pays and allowances. Under a military salary system, those items of the current pays and allowances system which should comprise military equivalent salary would make up the elements of salary.

### BACKGROUND

A review was made of previous studies of military compensation to see how the issue of military equivalent of civilian salary has been treated in the past. The findings are summarized as follows:

1. Hook Commission-1948<sup>1/</sup>

The Hook Commission Study of 1948 was the most comprehensive

<sup>1/</sup> Career Compensation for the Uniformed Forces, Advisory Commission on Service Pay, December 1948

study of military compensation that had been made since 1908. In arriving at recommendations on the level of military pay, the Commission made comparisons with salaries of civilians in private industry. The Commission compared what it termed "basic compensation" with civilian salaries. "Basic compensation" was defined as basic pay and the basic allowances for subsistence and quarters. The Commission recognized that in-kind quarters and subsistence were part of "basic compensation" for those personnel receiving them. An estimated value of government-furnished food and housing was added to the basic pay of junior enlisted personnel receiving in-kind quarters and subsistence when comparisons of their "basic compensation" were made to private industry salaries. While basic pay was defined as pay for responsibility and thus clearly a part of a military equivalent of salary, no explicit rationale was given for including quarters and subsistence except that it was necessary to include the allowances when comparing to civilian salaries to be "fair and practical."<sup>1/</sup> The Commission did not account for the tax advantage arising from the fact that the two allowances are not subject to Federal income tax when comparing basic compensation with civilian salaries. However, this tax advantage was recognized; in the introduction to the final report, the Commission stated, "...he (the military member)

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<sup>1/</sup> Ibid, p. 18

has an equal responsibility to support himself and his dependents and to participate in the cost of government as a taxpayer. The present tax exemption now enjoyed by service personnel should be extended only until the compensation is equitably adjusted. " <sup>1/</sup>

In summary, the Hook Commission considered the military equivalent of civilian salary to consist of basic pay, quarters (cash or in-kind), and subsistence (cash or in-kind) with the recommendation that once these elements of compensation were adjusted to be equitable with salaries in the private sector, the tax exempt status of the allowances should be removed.

## 2. Cordiner Committee Study-1957 <sup>2/</sup>

The Cordiner Committee Study was conducted during a period in which the loss of military personnel with scientific and technological backgrounds was perceived as having a detrimental effect on national security. After comparing military compensation with compensation in private industry and the federal government, the Committee concluded that the low pay of the military in comparison to those groups was a major reason that large numbers of military personnel, especially technically-trained personnel, were leaving the service and recommended a substantial increase in basic pay. The Committee compared the sum of basic pay, basic allowance for quarters, and basic allowance for sub-

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<sup>1/</sup> Ibid, p. ix.

<sup>2/</sup> A Modern Concept of Manpower Management and Compensation For Personnel of The Uniformed Services, Defense Advisory Committee on Professional and Technical Compensation, Volume I, May 1957



sistence with civilian salaries plus bonuses. The Study did not document what was included in bonuses. The committee accounted for the tax exempt nature of the quarters and subsistence allowances by making the comparisons on net income after Federal income taxes. No explanation was given in the report for defining the military equivalent of salary in this manner.

3. Gorham Committee <sup>1/</sup> and Randall Panel <sup>2/</sup> - 1962.

The Randall Panel, after reviewing the Gorham Committee Study, advocated a military salary system but recommended that an evolutionary process be used in arriving at a gross salary system for the military. The Gorham Committee, in recommending a military salary system, explicitly defined what was included in a military equivalent of salary and the rationale for inclusion.

The Committee defined civilian basic wage or salary as payment for services rendered, the level of wage or salary being commensurate with the duties, responsibilities, and skill required of the job. Both the Federal civilian and the private sector employee "is dependent upon his wage or salary for setting his individual standard of living, in meeting his everyday needs and those of his dependents, and taking his social place in the community." <sup>3/</sup>

The Committee pointed out that the total of basic pay and allowances (quarters and subsistence) was the compensation upon which the military

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<sup>1/</sup>Defense Study of Military Compensation, 1962.

<sup>2/</sup>The Advisory Panel on Federal Pay Systems, 1962.

<sup>3/</sup>Ibid, p. 6, Volume III.

member sets his standard of living and, therefore, "for comparison of compensation systems it is considered that the military basic pay, including quarters and subsistence allowances, plus the income tax savings (civilians are taxed on total wage and salary, military allowances are tax exempt) is comparable to civilian wages and salaries." <sup>1/</sup> This was the first explicit formulation of what is today defined in law as Regular Military Compensation (RMC).

4. Department of Defense Study of Military Compensation - 1964. <sup>2/</sup>

One of the primary tasks of the 1964 study of military compensation was to evaluate a military salary system. While the study recommended against a military salary system primarily because of the budgetary effects, the items of military compensation which it considered the military equivalent of civilian salary were: basic pay; basic allowance for quarters; basic allowance for subsistence; and the amount of the income tax advantage. Special pays would also be included in the military salaries in those instances where they apply.

Although the study did not document the precise reasoning for inclusion of each of those particular items of compensation as the military equivalent of salary, the criterion used was that the pay or allowance had to be received by all, or a substantial portion of the total military population, and not be subject to frequent "starts" and "stops." <sup>3/</sup>

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<sup>1/</sup>Ibid, p. 8, Volume III.

<sup>2/</sup>This study (DiFusco study) was an in-house effort which was never approved by DoD or the administration and never sent to Congress.

<sup>3/</sup>Ibid, p. 4-5.

5. First Quadrennial Review of Military Compensation-1967<sup>1/</sup>

The First Quadrennial Review of Military Compensation (QRMC) recommended a military salary system. It proposed that military salary consist of the following elements: basic pay, quarters and subsistence allowances; tax advantage (resulting from these non-taxable allowances); and an imputed retirement contribution of 6 1/2%, equal to the contribution made by the Federal civil servant, because the military member does not contribute directly to his retirement.

The rationale used by the First QRMC for defining military salary in this manner was:

- a) Basic pay, quarters and subsistence allowances, and tax advantage are all received in one form or another by each military member during each pay period.
- b) The nonmilitary employee who is paid a salary normally has to provide for his quarters and subsistence, and pay full taxes on that salary.
- c) The Federal civil servant contributes to his retirement out of his salary while the military member makes no contribution to his retirement.

In summary, the major studies of military compensation beginning with the Hook Commission in 1948 have treated the military equivalent

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<sup>1/</sup> Modernizing Military Pay, Report of the First Quadrennial Review of Military Compensation, November 1967



of civilian salary as composed of four elements: basic pay; basic allowance for quarters; basic allowance for subsistence; and the tax advantage which results because these two allowances are not subject to Federal income tax.

What is Salary?

Before attempting to determine the elements of military compensation which comprise a military equivalent of civilian salary, a search was made for a definition of salary. A working definition approved by the Study Group is that salary is a fixed, periodic sum of taxable cash normally paid in increments as the usual full monetary return for services performed without regard to marital status or family size. <sup>1/</sup> Hewitt Associates defines salary as a fixed basic payment made for time worked. <sup>2/</sup> The Civil Service Commission and the Bureau of Labor Statistics generally define salary as straight time pay for time worked. <sup>3/</sup> A recent book on compensation defines salary as the base pay which an employee receives on a periodic basis and which generally sets the employee's standard of living. <sup>4/</sup> A standard English language dictionary

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<sup>1/</sup>Third Quadrennial Review of Military Compensation Study Group meeting, April 4, 1975.

<sup>2/</sup>The Elements of Compensation, Hewitt Associates, January 1969.

<sup>3/</sup>See the National Survey of Professional, Administrative, Technical, and Clerical Pay.

<sup>4/</sup>Sibson, Robert E., Compensation, Amacom, New York, 1974.



defines salary as a fixed payment at regular intervals for service. <sup>1/</sup>

Drawing on all of these definitions, a salary has the following characteristics:

- a. is a fixed amount.
- b. is related to time worked, work performed, or services rendered.
- c. payment is made on a periodic basis.

From time to time various elements of military compensation have been proposed as being appropriately included in a military salary, or have been included in the military equivalent in comparison with civilian salary. Using the characteristics described above for salary, together with the Third QRMC working definition, each of these elements are analyzed in this paper with a recommendation for inclusion or deletion.

There are several issues that must be address regardless of the manner in which military equivalent of salary is defined:

- a. By direction of the Secretary of Defense, account must be taken of the unique conditions of military service whether the current pays and allowances system is retained or a military salary system is adopted.

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<sup>1/</sup>Webster's New World Dictionary of the American Language, The World Publishing Company, 1966.

The QRM staff will quantify this "x-factor" to the extent possible. Whether the "x-factor" should impact the military salary or equivalent of salary (as it does under the Canadian and British pay systems) or should be accounted for in the compensation benefits (FB) area is an issue which must be decided. The QRM staff will treat this issue separately.

b. If the pays and allowances system is converted to a military salary system, those elements of military compensation which are now related to basic pay will be affected. The Staff will develop alternative approaches to those elements of compensation to maintain their relationship to the elements of compensation subsumed in salary. The compensation elements affected are:

1. Retirement
2. Reenlistment Bonus
3. Federal Insurance Compensation Act (FICA)
4. Cadets and Midshipmen Pay
5. Death Gratuity
6. Reserve and National Guard Pay
7. Dislocation Allowance
8. Family Separation Allowance

Items Considered for Inclusion in Military Equivalent Salary.

1. Basic Pay.

Basic Pay is the only compensation item received in cash each payday by all members of the uniformed services. Basic pay rates vary by grade and longevity step within each pay grade. Basic pay is the only compensation item which, like civilian salaries, is payment for work performed, responsibility assumed, or time worked. Basic pay is the only element of military compensation on which all military members pay Federal, state and social security taxes. It is the only military compensation item on which retirement benefits are based. Basic pay clearly belongs in a military equivalent of salary.

2. Basic Allowance for Quarters.

All military personnel on active duty are entitled to a basic allowance for quarters except when assigned to government quarters appropriate to their grade, rank, or rating and adequate for themselves and their dependents, if with dependents. 1/

All military personnel must reside in government quarters if assigned 2/ except for O-4's and above without dependents who may

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1/ 37 U.S.C. 403(a)(b)

2/ DODI 4165.44 (Encl 4), April 30, 1971.



choose to receive the basic allowance for quarters instead of residing in government quarters. 1/

In 1925 the Court of Claims ruled in respect to the allowance of public quarters or commutation of quarters that "...not only are they not allowances of a compensatory character, but they are not income as well."2/ Because they are not income, the Court ruled that the allowances are not subject to income taxes. It can be argued that the quarters allowance is not income and, therefore, should not be included in military equivalent of salary because of the Court of Claims decision.

Retirement income in the private sector is generally based upon a combination of length of service and salary. Military retirement income is based upon a combination of length of service and basic pay. For the purpose of computing retirement benefits, therefore, basic pay is the only element of military compensation that is analagous to civilian sector salaries. The argument can be made that since the quarters allowance is not counted as income in computing military retirement benefits, it, therefore, should not be included in a definition of military equivalent of salary.

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1/ 37 U.S.C. 403(a)(b)

2/ Clifford Jones vs. The United States (60 Ct. Cls. 552, April 13, 1925).



Quarters whether in cash or in-kind are received by all service members, every payday; that is, they are either provided a place to live by the government or are provided a cash allowance to enable them to procure housing. It is a regular, periodic addition to income of all members, contributes to their standard of living and, in this sense, conforms to one definition of salary. The civilian, on the other hand, is not normally provided quarters by his employer, or a cash allowance for housing. He must provide for a place to live from his salary. Therefore, in comparing military pay to civilian salaries, it appears reasonable to include quarters in military equivalent of civilian salary.

The quarters allowance is based partly upon need in that members with dependents receive a larger allowance than those without dependents. Like the civilian salary and military basic pay it is also based partly upon the level of work performed or level of responsibility, in that the amount of the quarters allowance increases with pay grade.

The basic allowance for quarters, as part of Regular Military Compensation, is recognized in law as being part of the military compensation that is adjusted to keep pace with increases in General Schedule salaries. Public Law 90-207 <sup>1/</sup> first tied military pay raises

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<sup>1/</sup>81 Stat. 649, P.L. 90-207, December 16, 1967.

to Federal General Schedule pay raises. The law specified that the overall average increase in "regular compensation" would equate to the salary increase of General Schedule employees. Regular compensation was defined as basic pay, quarters and subsistence allowances (either in cash or in-kind) and the federal income tax advantage on those allowances. Regular Military Compensation is described by the House Armed Services Committee as the military pay level which bears a reasonable relationship to civilian wages for equivalent levels of work. 1/ The Senate, on the other hand, does not accept the view that RMC is the military equivalent of salary, although they do agree that RMC is that portion of total military compensation which is equatable to salary for the purpose of computing comparability pay adjustments. 2/

As already described, all major studies of military compensation beginning in 1948 have included the quarters allowance when making comparisons with civilian salaries. Therefore, for at least the past 25 years, there has been general acceptance by both the Department of Defense and the Congress that quarters, whether in cash or in-kind, are a part of military compensation and should be included as a part of the military equivalent of civilian salary.

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1/House Report No. 94-5, Pay and Allowances of the Uniformed Services Pursuant to Title 37, United States Code, 1975, p. 79.

2/Senate Report No. 92-93, Amending the Selective Service Act of 1967; To Increase Military Pay; To Authorize Military Active Duty Strengths for Fiscal Year 1972, and For Other Purposes, May 5, 1971, p30.

Weighing the arguments on both sides, the concept of RMC and the inclusion of quarters in repeated studies of military compensation seem persuasive, and the staff concludes that quarters, whether in cash or in-kind, be included as a part of military equivalent of civilian salary for purposes of making comparisons of compensation.

It is recognized that neither quarters nor the basic allowance for quarters are considered pay for time worked, but are based largely on paternalistic considerations of need. Therefore, in considering a salary system alternative, the unequal pay for equal work which would result from direct conversion would need to be rectified.

3. Basic Allowance for Subsistence.

All commissioned officers and all warrant officers are entitled to a monthly basic allowance for subsistence at the same rate.

An enlisted member is entitled to the basic allowance for subsistence, on a daily basis, of one of the following types:

- a. when rations in-kind are not available
- b. when permission to mess separately is granted; and
- c. when assigned to duty under emergency conditions where no messing facilities of the United States are available. 1/

The officer basic allowance for subsistence is difficult to evaluate

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1/ 37 U.S.C. 402(b)



because the purpose of the allowance is unclear. A history of the subsistence allowance for officers indicates a changing philosophy of the intent of the allowance. Prior to 1870, the amount of subsistence was related directly to rank. For subsistence purposes, an officer was authorized a certain number of rations or cash in lieu thereof. The number of rations authorized ranged from two for the lowest ranking officers to as many as 40 for the General of the Army of the United States.

In July 1870 a salary system was adopted and rations were abolished. This system remained in effect until 1922 when, once again, subsistence allowances became part of officer's pay. Under the Pay Readjustment Act of 1922, the amount of the subsistence allowance was not based on rank, but was based instead on need. Officers with no dependents received one subsistence allowance and those with dependents received two subsistence allowances. In addition, certain officers between the ages of 35 and 50 were authorized three subsistence allowances based on the theory that an officer's expenses because of his dependents are greater during the time he is between those ages.

With the passage of the Career Compensation Act of 1949, all officers received the same basic allowance for subsistence. The argument presented in testimony before Congress for paying all officers the same basic allowance for subsistence was that the purpose of the



allowance was to compensate the officer for the "unusual expenses" to which he is subjected because of his employment. <sup>1/</sup> The officer, while at home, was expected to provide subsistence for himself and his dependents out of his basic pay. While away from home, the basic allowance for subsistence is intended to reimburse him for the additional expenses he incurs for subsistence and this additional expense is the same for all officers regardless of rank or number of dependents. <sup>2/</sup> Thus, the basic allowance for subsistence was judged to be the same for all officers.

The basic theory underlying subsistence for enlisted personnel is that the government is required to furnish them with subsistence in-kind or a commutation in lieu thereof. In hearings before the House Armed Services Committee on the Career Compensation Act of 1949, Mr. Blandford, General Counsel for the Committee stated, "Any time a man enlists in the service, the law requires that the government subsist that man. And, if the government does not subsist that man, then we will have to reimburse him for that food. Under his contract, they agree to feed him, clothe him, and shelter him." <sup>3/</sup> From 1949 until passage of

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<sup>1/</sup>Hearings before Armed Services Committee, House of Representatives, March 18, 1949.

<sup>2/</sup>Ibid. It was recognized that in some years an officer would be overpaid since he would be at home while receiving a subsistence allowance, yet in other years while away from home, he would be underpaid. The intent of the subsistence allowance was to balance these inequities.

<sup>3/</sup>Hearings of March 18, 1949 on H.R. 5007 before Subcommittee No. 2 of House Armed Services Committee, p. 1667.

P.L. 93-419, 1/ the subsistence allowance was adjusted to reflect the raw food cost to the Department of Defense.

Because the subsistence allowance is the same for all officers, it is clearly not based on the level of work performed or services rendered and, therefore, does not fit the definition of salary. The same is true of subsistence for enlisted personnel.

The subsistence allowance, like the quarters allowance is not treated as income for Federal income tax purposes for the same reasons, and, therefore, is different from the fully taxable civilian salary.

Despite the purpose of the allowance and despite the fact that it is not taxable as income, the facts remain that:

a. Like the quarters allowance, it is recognized by Congress as part of Regular Military Compensation (RMC), used since 1967 as the basis of adjusting military basic pay to keep pace with Federal General Schedules salaries.

b. Under P. L. 93, 419, it is adjusted along with basic pay and the quarters allowance to increase military pay at the same pace as General Schedule salaries.

c. Like BAQ it has been included in a military equivalent of civilian salary in every study of military compensation since 1948.

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1/P.L. 93-419, An Act to Amend Title 37, to Refine the Procedures for Adjustments in Military Compensation, and For Other Purposes, September 19, 1974.

d. As a regular, periodic addition to disposable income of all members it contributes to their standard of living. In this sense it conforms to one definition of salary. For these reasons, the Staff concludes that the basic allowance for subsistence should be included as a part of military equivalent of civilian salary.

4. Tax Advantage.

A Federal income tax advantage accrues to military members because the quarters and subsistence allowances are not subject to Federal income tax. This tax advantage is the amount of additional cash pay a serviceman would have to receive, which, if these allowances were subject to Federal income taxation, would leave him with the same take home pay he now has.

The amount of the tax advantage varies for each pay grade, each longevity step, and whether the member receives allowances in cash or in-kind. It also varies by the number of dependents each member has because as the number of dependents increase, tax liability and hence tax advantage decrease. It also varies with the members other sources of income, tax return method, and similar considerations unrelated to military compensation. For these reasons, while the tax advantage concept is clearly recognizable, it cannot be quantified

accurately. In military compensation practice, it is estimated based on a group of assumptions which are useful for dealing with the subject in aggregates.

The nontaxability of the two allowances is based on 1925 Court of Claims decision. <sup>1/</sup>

If the quarters and subsistence allowances are accepted as being part of military equivalent of salary, then it follows that tax advantage is also a part of military equivalent of salary because the civilian must pay taxes on his full salary. The Staff concludes, therefore, that tax advantage be included in military equivalent of salary.

5. Imputed Retirement Contribution.

A brief synopsis of industrial practice and trends in pension plan characteristics is presented as background to the consideration of an imputed contribution of military retirement for inclusion in the military equivalent of salary.

Retirement and pension plans vary in two major as well as in many lesser characteristics. The two major characteristics are:

- a. Does the member make a contribution to the plan?
- b. Does the member have a non-forfeitable (vested) right to

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<sup>1/</sup>Clifford Jones vs. The United States (60 Ct. Cls 552, April 13, 1925).



his full accrued pension benefits under the plan if he withdraws or is separated from employment prior to his normal retirement date under the plan?

Industrial practice varies widely, but definite trends are evident. A 1974 Conference Board study of employee benefit practices in 1800 firms found that 80% have non-contributory pension plans. <sup>1/</sup> A comparison of these results with the 1964 Conference Board survey showed that "74% of the office employee's plans are free now, up from 65% then; similarly, non-office employee's plans are non-contributory 82% of the time now, as compared with 76% then." A 1975 Bankers Trust Company study of pension plans of 190 private corporations showed that 67% of the conventional pension plans were non-contributory and that the trend is continuing toward non-contributory plans. <sup>2/</sup> In the 1965-70 period only 56% of the plans studied were non-contributory. A study of industrial and public pension systems conducted by The Wyatt Company for DoD reports similar findings. <sup>3/</sup> The pension plans for

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<sup>1/</sup> Profile of Employee Benefits, The Conference Board, Inc., New York, 1974.

<sup>2/</sup> 1975 Study of Corporate Pension Plans, Bankers Trust Company, New York, 1975.

<sup>3/</sup> Retirement Trends in Industrial and Public Pension Systems, A Study Conducted by the Wyatt Company for the Department of Defense, April 30, 1975.

salaried employees of 27 of the 50 largest industrial companies were entirely non-contributory and most of the pension plans for hourly-rate employees are now non-contributory.

The above three studies also report a trend toward earlier vesting provisions in pension plans over the 1970-75 period. The Conference Board found vesting in plans of 90% of the 1800 companies surveyed while Bankers Trust Company and The Wyatt Company found virtually all of the organizations they surveyed to have vesting provisions in their retirement plans. The trend toward more liberalized vesting is expected to accelerate as many plans are being amended to meet one of the minimum vesting standards set by the "Employee Retirement Income Security Act of 1974."<sup>1/</sup> The Wyatt Company found that "State programs are also becoming more liberal in their vesting provisions. In recent years, there has been a trend to refund employee contributions with full credited interest rather than no interest or only partial interest."<sup>2/</sup>

The Civil Service retirement program requires a specified percentage contribution of basic salary from each employee under the plan. The member has the right to the refund of his contribution at any date of separation prior to his eligibility for retirement under the plan. After five years of service the employee has a vested right to deferred

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<sup>1/</sup>Enacted 2 September 1974.

<sup>2/</sup>Wyatt, Op. Cit., p. 15.

benefits under the plan if, upon pre-retirement separation, he leaves his contributions in the fund.

The military retirement plan is non-contributory. The military member has no vested rights under the plan prior to eligibility for retirement at 20 years of service.

The basic question addressed by the QRM C Staff was "Shall a retirement contribution be imputed for the military members and be included in military equivalent salary? "

An imputed contribution represents an imputed additional amount of compensation that a military member might be paid for contribution to a retirement fund if he contributed to a retirement fund.

The First QRM C was the only one of the earlier compensation studies previously discussed that included an imputed retirement contribution in the definition of military equivalent of salary.<sup>1/</sup> That stemmed apparently from three principal reasons:

a. The report states: "The legislative history of military pay makes it clear that an imputed contribution to military retirement has been accounted for by reducing career basic pay rates below what they, otherwise, would have been." <sup>2/</sup>

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<sup>1/</sup> Modernizing Military Pay, Report of the First Quadrennial Review of Military Compensation, Vol. IV, The Military Estate Program, 15 January 1969.

<sup>2/</sup> Ibid citing U.S. Congress, House of Representatives, Report No. 549 to accompany H.R. 9075, 89th Congress, 1st Session, Uniformed Services Pay Act of 1965, June 24, 1965, p. 24.



b. The First QRM C proposed a specific linkage of the military pay line to the Federal Civil Service pay line under the "common employer" concept and, as pointed out, the Federal Civil Service retirement program is contributory.

c. The First QRM C proposed a specific salary and retirement system for military members with a specific rate of contribution for retirement (integrated with Social Security deductions) and with vesting rights made directly comparable with Civil Service.

The idea of an imputed retirement contribution perhaps had merit for comparability in the narrow context of the specific recommendations of that study. However, it is illogical to attribute an imputed retirement contribution to the military member's salary, in general, without his having a right to the refund of that contribution at pre-retirement separation or having a vested right in the pension that might have been obtained through such contribution.

If an imputed retirement contribution were to be included in military equivalent of salary for the current retirement system, two problems would arise. There would be the potential for creation of liabilities to pre-retirement separatees for salary earned, but not received. Secondly, from a comparative analysis point of view, a single arbitrary rate of contribution



is inappropriate for use in multiple alternative comparisons. More appropriately, an imputed retirement contribution would be based on consideration of differing characteristics of the retirement systems being compared and bear the same relationship to the "normal costs" of the systems being compared. The "normal cost" of a retirement benefit is the present value (cost) of all benefit rights earned during any given period under a retirement program as determined by the actuarial cost method of valuation. For instance, the current 7% contribution of the majority of Federal Civil Service employees is approximately one-half of the current "normal cost" of their retirement system.

A direct comparison of retirement plans as fringe or supplemental benefits on a cost and benefit basis is strongly preferred to the inclusion of imputed retirement contribution in a military equivalent of salary. The QRMC Staff concludes that an imputed retirement contribution should not be included in the military equivalent of salary.

In summary the considerations are:

- a. Retirement and pension plans are fringe or supplemental benefits in industrial and professional compensation practice.
- b. The great majority of industrial pension plans are non-contributory and, therefore, an imputed contribution to the military equivalent of

salary would be inappropriate for comparison purposes in those cases.

c. Imputation of a contribution to the military equivalent of salary in the current pays and allowances system is inconsistent with the members lack of rights to refund of contribution and of vested rights in deferred benefits.

d. The imputed contribution to retirement precedent of the First QRM C evolved in a very specific and narrow context of comparability linkage, analysis methodology, and proposed system change.

e. From a compensation analysis point of view, it is much more preferable to consider retirement system alternatives as fringe benefits whose costs and benefits are a function of salary (or the military equivalent of salary) rather than to include their imputed costs or benefits directly in the military equivalent of salary.

#### 6. Medical Care.

Among industrial, military, and other government organizations, health benefits have been and continue to be an important fringe benefit to an employee. Sibson classifies all company costs incurred directly on behalf of employees other than direct pay, bonuses, and long term income as fringe benefits. <sup>1/</sup> These costs are considered extra

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<sup>1/</sup>Sibson, Robert E, Compensation, Amacom, New York, 1974 pp. 212-220.

compensation to the employee and are not related to the amount of work performed.

The "extra" compensation for health benefits is generally provided in two ways. First, employees receive occupational and non-occupational health services delivered by health professionals employed by the organization. Second, companies contract with health insurers to provide employees the option of enrolling themselves and their dependents in one or more health insurance plans. The levels of benefits offered vary among firms from basic hospitalization to comprehensive benefits which protect against nearly all the potential health care costs incurred by an employee or his family.

Direct health services are received free of charge by employees. Generally, the financing of health insurance premiums vary from total payment for the employee and his family to total payment for the employee with the additional premium for family coverage being shared between the employee and the company. Any contribution required of the employee is deducted from his direct pay. As employees or their families use health services, additional out-of-pocket costs may be incurred in the form of deductibles and copayments required by the policy or for services excluded from the policy.



Private industry and the Federal Civil Service provide similar health benefits. Both provide minimal direct health service programs with the major benefit provided by health insurance. Financing is similar. The Federal government pays approximately 60% of the total premium for self or self and family enrollments. In private industry, companies generally provide the employee's coverage free and share the premium for dependents coverage.<sup>1/</sup> While no changes are anticipated in Federal cost sharing, private industry trends indicate a move toward the company paying the full premium for employee and family.

Several differences exist between the uniformed services health benefits and those of private industry and Federal Civil Service.

First, the military member receives his major health benefit in the form of direct health care services from a worldwide health delivery system capable of providing a full range of hospital and professional services. These services exist for the military member and, when space and staff are available, can be used by his family, retired members and their families, and survivors.

Second, the uniformed services operate a unique supplemental health services program which under certain circumstances authorizes hospital and professional services from civilian providers for dependents of active members, retirees and their families, and survivors.

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<sup>1/</sup>The Conference Board, An Interim Report: National Health Insurance and Corporate Benefit Plans, The Conference Board, New York, N.Y., 1974, p. 33.



Third, the financing of the health benefit departs dramatically from the cost sharing method found in private industry and the Federal Civil Service. Whereas the non-military employee generally has out-of-pocket expenses if he requires health care, any health services required by the active military member are totally free of charge. Whereas the non-military employee incurs both premium and out-of-pocket costs for family members, the military member incurs out-of-pocket expenses only when his family utilizes military or civilian health services. A nominal charge for subsistence is made for each day in military hospitals and larger deductibles and copayments for care authorized in civilian clinics, offices, or hospitals. The primary difference in financing is that no salary deduction is made from the active member's take-home pay for his health benefits, while the non-military employee contributes a share of the health insurance premium for his family by payroll deduction.

A review of private business, Federal Civil Service, and the Uniformed Services health benefits indicates differences in the way by which the health benefit is provided, the manner in which it is financed, and basis for employee out-of-pocket costs for his and/or his family's health service needs. While some organizations require contributions toward health benefit costs,

in all organizations health benefits are clearly fringe benefits and are not related in any way to salary.

Therefore, the Staff concludes that medical care should not be included in the comparison of military equivalent salary.

7. Commissaries and Exchanges.

Commissary and Exchange privileges enable military members to realize savings on purchases compared to similar purchases in the civilian market.

Commissary and Exchange benefits are related to usage and not to work performed. Generally, the larger the family the greater the benefit. Over 90% of the commissary benefits <sup>1/</sup> and approximately 65% of exchange benefits <sup>2/</sup> accrue to married military members.

Because commissary and exchange benefits have no value unless used, are not realized by all members and are not spread uniformly across all service members, it is not appropriate to include them in military equivalent of salary.

The Staff concludes that commissary and exchange benefits should not be included in military equivalent of civilian salary.

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<sup>1/</sup> The Net Cost Impact of Reduced Navy Commissary Operations, Control Analysis Corporation, March 1975.

<sup>2/</sup> Military Market, Exchange Edition, April 1975, p. 28.

#### 8. Special and Incentive Pays

A variety of special and incentive pays are received by various members of the uniformed services. Included in this category are incentive pay for hazardous duty, aviation career incentive pay, special pay for medical personnel, etc.

In civilian compensation systems, normally the extra remuneration for jobs which involve hazards or positions of professional skill is attached to the job itself and therefore is integral to the salary.

These pays might appropriately be added to the military equivalent of salary for those communities receiving them when making comparisons with similar civilian employments. It appears inappropriate, however, to include them in military equivalent of civilian salary which is applicable to the entire force since each is applicable but to a small proportion of the force.

The Staff concludes that special and incentive pay should not be included in military equivalent of civilian salary, although some may be treated as "salary" for those personnel receiving them.

#### 9. Clothing Maintenance Allowance.

On entry into military service, all enlisted members are furnished an initial one-time free issue of military uniforms and clothing. They are required to maintain this military wardrobe at prescribed acceptable standards by replacement purchase and repair. To meet this military

requirement, they are provided a monthly money allowance after 6 months of service.

The clothing maintenance allowance conforms to two characteristics of salary: It is a fixed amount, and payment is made on a periodic basis. However, unlike the definition of civilian salary, the allowance is not related to the level of work performed or services rendered.

Typically, employees in private industry whose jobs require wearing a special uniform are either provided those uniforms or a clothing allowance to purchase them. DoD civilian employees required to wear uniforms are provided a uniform allowance for replacement of uniforms. Firemen and policemen of both the District of Columbia and Fairfax County are issued initial and replacement uniforms.

The clothing maintenance allowance is then most appropriately treated as reimbursement to enlisted members for expenses in meeting military clothing requirements, and not as salary.

The Staff concludes that the clothing maintenance allowance should not be included in the definition of military equivalent of salary.

10. Conclusion: The Staff concludes that: A) military basic pay is the only pay now made for services or for time worked; B) military equivalent salary should be composed of the following: Basic pay; basic allowance for quarters; basic allowance for subsistence; and the tax advantage



which results because these two allowances are not subject to Federal income taxes. Since these elements, at present, are not paid to all members on the basis of equal pay for equal work, cost estimates associated with the compensation items must be based upon approximations which do not represent the actual "salary" of individual members. While these approximations would be useful for general comparison purposes, they could not be used directly to establish military salary levels.

BASIC ALLOWANCE FOR QUARTERS AND GOVERNMENT  
FURNISHED QUARTERS

A Staff Research Paper  
Prepared For  
The Third Quadrennial Review  
Of Military Compensation

24 September 1976  
Revised 9 April 1976

# THIRD QUADRENNIAL REVIEW OF MILITARY COMPENSATION

## STAFF RESEARCH PAPER

### QUARTERS

#### Purpose:

This paper is comprised of two parts. The purpose of Part I is to identify that portion of the appropriated fund cost of quarters which should be considered as the compensation cost of quarters and to estimate the compensation value of quarters to the service member. Part II examines the relationship of the allowances to the actual costs of the items they are intended to procure and develops alternatives to the present system. It also addresses some related equity issues.

## PART I

### Compensation Cost and Value of Quarters

#### I. Introduction:

This section presents a brief history of government pay for quarters and the current legislative authority, discusses the question of whether the basic allowance for quarters (BAQ) is compensation, and concludes with detailed evaluations of the compensation cost and value of the quarters allowance and government quarters provided in-kind and the resulting measurement of effectiveness.

#### II. Legislative Authority.

Section 403 of Title 37 of the United States Code (37 U.S.C. 403) (TAB A) provides that a member entitled to basic pay is also entitled to a basic allowance for quarters when he is not assigned government owned or controlled quarters that are both appropriate to his grade and adequate for the member and his dependents. However, officers without dependents in grades O-4 and above may elect not to occupy available quarters and instead receive a BAQ. It further provides that a member without dependents is not entitled to BAQ while on field duty or sea duty.

The law further authorizes entitlements to BAQ under certain other specific conditions including:



- o Short periods of sea duty and field duty and for members on field duty who must obtain quarters at their own expense.
- o When dependents are prevented by competent authority from occupying available quarters.
- o For members in grade E-4 with over four years' service and above while on travel or leave in conjunction with a permanent change of station and for aviation cadets.

### III. Background.

There have been 11 major legislative changes since 1922 which have affected either the BAQ rates or the eligibility for BAQ. The legislative history of these changes and the resulting BAQ rates are summarized at TAB B. The current 1 October 1975 rates are at TAB C. A historical review of BAQ procedures prior to 1922 showed that the procedures were essentially the same as those subsequent to 1922; therefore, reference is made to the earlier procedures only when pertinent to a particular issue.

Since June 1922, the BAQ rate has been related to the grade and dependency status of the service member. Prior to 1922, and as far back as 1821, Army regulations provided that the government would furnish quarters, either public or hired, appropriate to the rank of an officer and would provide quarters for enlisted personnel. The provision

of an allowance, then called commutation, payable to an officer in lieu of providing quarters also dates from 1821. Navy personnel were treated in a similar manner.

#### IV. Is Basic Allowance for Quarters or In-Kind Quarters Compensation?

In previous studies of military compensation, beginning with the Hook Commission in 1948 and continuing through the First Quadrennial Review of Military Compensation in 1967, the various study staffs have found that the BAQ and certain other allowances needed to be combined with basic pay in order to make valid compensation comparisons between the military and civilian sectors of the economy.

Based on a 1925 U.S. Court of Claims' decision, the BAQ is not currently subject to Federal income tax.<sup>1</sup> In the 1925 landmark decision, the court reviewed the history of BAQ from 1813 to 1922 and concluded that "Quarters furnished to officers of the Army in-kind and commutation of quarters paid to them where quarters cannot be furnished in-kind are allowances and not compensation within the meaning of the laws of Congress imposing the income tax."<sup>2</sup>

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<sup>1</sup> Clifford Jones vs. The United States 60 Ct. Cls #D-316, p. 552, decided April 13, 1925

<sup>2</sup> Ibid. p. 552

In the 1925 case, Judge Booth partially supported his decision that the BAQ was not compensation and not taxable on the basis that Congress had over the years recognized the payment as an allowance and not as compensation and that the officer had no option in regard to occupancy of government quarters. Both of these conditions have changed since 1925.

First, a definition of regular military compensation has been added to Title 37 by Section 1 of Public Law 93-419 (88 Stat. 1152).<sup>1</sup>

"(25) 'regular compensation' or 'regular military compensation (RMC)' means the total of the following elements that a member of a uniformed service accrues or receives directly or indirectly in cash or in-kind every payday: basic pay, basic allowance for quarters, basic allowance for subsistence, and Federal tax advantage accruing to the aforementioned allowances because they are not subject to Federal income tax."<sup>2</sup>

Second, Title 37 has been further revised as follows: "A commissioned officer without dependents who is in a pay grade above pay grade O-3 and who is assigned to quarters... may elect not to occupy those quarters and instead receive the basic allowance for quarters prescribed for his pay grade...."<sup>3</sup>

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<sup>1</sup> Committee on Armed Services Report #94-5, U.S. House of Representatives, U. S. Government Printing Office, 1975

<sup>2</sup> Op. Cit Armed Services Committee Report #94-5

<sup>3</sup> 37 U.S.C. 403(b), TAB A



Currently, military retirement income is computed on basic pay excluding allowances such as BAQ. In the private sector, and in other government agencies, there are no similar allowances and retirement is normally based on salary. In non-military jobs, both government and civilian, the employee normally must procure housing from his salary.

The current law considers the BAQ to be part of regular military compensation. The same law also includes as compensation a "tax advantage" to offset the non-taxable nature of the BAQ. Effective December 1967, Public Law 90-207 prescribed calculation of the military pay adjustment based on RMC and the adjustment of basic pay by the whole amount so calculated. Effective October 1974, as a result of Public Law 93-419, each time basic pay is adjusted, the BAQ and the basic allowance for subsistence are both adjusted by the same percentage as basic pay.

As a result of these various changes in the law since 1922 and in light of the other considerations described, it appears that in the present military compensation system both BAQ and QIK should be considered as compensation to the service member. Based on the explicit distinction in 37 USC 403 regarding eligibility for BAQ between assignment to government quarters and service on field and sea duty, it appears that the shelter, if any, included in duty in the field or in sea duty is not compensation.

V. Cost of Quarters.

The cost of quarters is composed of two elements: the cost of the quarters allowance for those personnel authorized BAQ and the cost of



providing quarters in-kind (QIK) for those personnel residing in government housing ashore.

The components of the total cost of quarters are:

Cost of Quarters

• Basic Allowance for Quarters

Officers

With Dependents

Without Dependents

Substandard Family Housing<sup>1</sup>

Enlisted

With Dependents

Without Dependents

Substandard Family Housing<sup>1</sup>

• Quarters In-Kind

Family Housing

Construction

Debt Payment

Operations and Maintenance

Military Personnel

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<sup>1</sup> Members in substandard quarters are entitled to full BAQ but pay a rent which is set to be less than BAQ, thus some payments are made.

Bachelor Quarters<sup>1</sup>

Construction  
Operations and Maintenance  
Military Personnel

A. Cost of BAQ.

FY 1976 budgeted costs of basic allowance for quarters reflects only the dollar amounts paid for BAQ, as shown in Table 1:

TABLE 1  
COST OF BAQ  
(\$ Millions)

	<u>Officers</u>	<u>Enlisted</u>	<u>Total</u>
With Dependents	\$402.0	\$1,223.2	\$1,625.2
Without Dependents	58.4	89.1	147.5
Substandard Family Housing <sup>2</sup>	1.8	11.6	13.4
Total	\$462.2	\$1,323.9	\$1,786.1

B. Cost of Quarters in Kind.

The total cost of QIK is not available from current budget submissions. While the costs of family housing are recorded in the Family Housing Management Account, the cost sub-elements of bachelor quarters are not collected in one place but rather incorporated in various appropriations (i. e. , MILCON, O&M and MP). FY 1975 data on the costs is the most current data available. Therefore the estimates shown below for family housing and bachelor quarters are based on 1975 data obtained from the best available sources identified in each area.

<sup>1</sup> There is no debt payment on bachelor quarters since all are built with appropriated funds.

<sup>2</sup> Members in substandard quarters are entitled to full BAQ but pay a rent which is less than BAQ, thus some payments are made.

# 1. Cost of Family Housing.

A Family Housing Management Account (FHMA) was established in 1962 by Public Law 87-554 and is now codified in 42 U.S.C. 1594a-1. The FHMA is administered by the Secretary of Defense as a single account for the payment of costs that are incurred for construction, acquisition, alteration, leasing and operations or maintenance of family housing, including the cost of principal and interest charges. (Capehart, Wherry, and surplus commodity housing were built with private mortgage market funds, and require repayment of principal and interest.) Included are insurance premiums in connection with the acquisition of family housing and mortgage insurance premiums under 12 U.S.C. 1815m (c) 12.<sup>1</sup> These premiums are estimated to cost \$3.1 million. Family housing is now constructed or obtained solely with appropriated funds. A memorandum account is maintained for military personnel costs associated with family housing.<sup>2</sup> Based on the FHMA, the family housing costs for FY 1975 were:

<u>TABLE 2</u>	
Family Housing Costs - FY 1975	
<u>Function</u>	<u>Costs (000)</u>
Construction	\$315,116
Debt Payment	164,035
Operations and Maintenance	789,645
Military Personnel	<u>21,235</u>
Total	\$ 1,290,031

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<sup>1</sup> Servicemen's Mortgage Insurance Premiums

<sup>2</sup> DoD Instruction 7220.6, w/2 changes dtd December 7, 1971

## 2. Cost of In-Kind Bachelor Quarters.

Unlike family housing management, the DoD does not have a special budgeting and accounting system for bachelor housing. The costs of constructing bachelor housing are identifiable because each bachelor housing construction project is a separate line item in the Military Construction Appropriation and is accounted for separately. However, the costs of operating and maintaining bachelor quarters are not budgeted or accounted for separately. These costs are included in the total Operations and Maintenance (O&M) costs of each of the services. They are distributed across all major force programs and all expense elements of O&M. Bachelor housing has always been constructed solely from appropriated funds. Therefore, unlike family housing, there is no debt payment associated with this program.

Review of existing DoD and service directives and regulations reveals there is no requirement to budget or account for the O&M costs of bachelor housing separately. However, the services each maintain cost data on some elements of the O&M cost of bachelor housing. For example, the Air Force maintains records on the cost of maintenance of bachelor housing. The Army maintains cost data on bachelor housing furnishings. These data do not include such costs as utilities, housing administration,



refuse collection, snow removal, and alterations and additions. Thus, the cost data maintained by the two services were only a small part of the total O&M expenditures for bachelor housing in FY 1975. O&M costs of bachelor housing are probably a major part of bachelor housing costs. However, available elements of total O&M costs of bachelor housing do not provide sufficient data for calculating the in-kind cost of bachelor housing.

The OSD-OMB Military Housing Study had the same problem in determining the cost of bachelor housing.<sup>1</sup> To overcome this problem, the OSD-OMB Housing Study Group (HSG) collected data at 11 CONUS installations to estimate the cost of bachelor housing worldwide. The cost data were based on estimated O&M expenditures for FY 1974. They did not include amortized construction costs or military personnel costs associated with bachelor housing.

The HSG used three methods for estimating FY 1974 bachelor housing O&M costs. The first method was to multiply the number of square feet of bachelor housing in CONUS by average and median estimated O&M costs per square foot. The second method was to multiply the estimated O&M cost per available space by the number of available CONUS bachelor housing spaces. The final method was to multiply the estimated O&M cost per occupant by the number of occupants to compute total annual estimated CONUS

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<sup>1</sup> OSD-OMB Military Housing Study Report (Draft), Vol. II, October 31, 1975, p. 67

O&M bachelor housing costs. The HSG did not collect any cost data from overseas commands. The overseas O&M costs were estimated by increasing the estimated CONUS O&M costs for each occupant by the ratio of the increase of family housing costs between CONUS and overseas family housing costs.<sup>1</sup>

The HSG estimated that the total annual costs of bachelor housing ranged between \$828 million and \$1,174 million, depending on whether the costs were estimated on square footage, occupancy rates, or available spaces. The estimated cost per square foot ranged from a low of \$.63 to a high of \$6.80 with an average cost of \$1.34 for bachelor enlisted quarters and \$2.45 for bachelor officer quarters.<sup>2</sup>

TABLE 3

HSG Estimate of CONUS Bachelor Housing Cost Rates<sup>3</sup>  
FY 1974

	<u>Enlisted</u>	<u>Officer</u>
Gross Square Feet	\$1.30 - \$2.20	\$2.45 - \$2.60
Available Spaces	\$270 - \$360	\$1,320 - \$1,440
Per Occupant	\$410 - \$470	\$1,510 - \$1,700

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<sup>1</sup> OSD-OMB Military Housing Study Report (Draft), Vol. II, October 31, 1975, p. 70

<sup>2</sup> Ibid, pp. 69 and 73

<sup>3</sup> Ibid, pp. 70 and 72

The ranges shown in the following table are the low and high costs developed under these methods:

TABLE 4  
HSG Estimated Aggregate Bachelor Housing Costs<sup>1</sup>  
FY 1974 (\$ Millions)

	<u>Enlisted</u> <sup>2</sup>	<u>Officer</u> <sup>3</sup>	<u>Total</u>
CONUS O&M	\$209 - \$450	\$27 - \$100	\$236 - \$550
Overseas O&M	\$ 84 - \$112	\$43 - \$ 47	\$127 - \$159
Construction	<u>\$453</u>	<u>\$12</u>	<u>\$465</u>
Total	\$746 - \$1,015	\$82 - \$159	\$828 - \$1,174

VI. Compensation Cost of In-Kind Quarters.

RMC since its inception has included a cash equivalent estimate for quarters in-kind (QIK). The estimates currently in use were developed in 1956 based on government costs to build and maintain the QIK inventory at that time (TAB D). Based on the following calculations, revised estimates for use for QIK valuation are suggested. It is recommended that the compensation costs developed in this paper be considered for use in future calculations of RMC.

A. Compensation Cost of In-Kind Family Quarters.

As of June 30, 1975, there were slightly more than 509 million gross square feet of family housing reported in the DoD Inventory,<sup>4</sup> including inactive and excess housing.

<sup>1</sup> Estimates only included members stationed on shore in CONUS and overseas including married members using bachelor quarters. It excluded members stationed aboard ship.

<sup>2</sup> OSD-OMB Military Housing Study Report (Draft), Vol. II, October 31, 1975, p. 68.

<sup>3</sup> Ibid, p. 71.

<sup>4</sup> Inventory of Military Real Property Report, June 30, 1975, as required by DoD INST 4165.14 w/3 changes, dtd December 21, 1966.

As of June 30, 1975, 383,766 family housing units were recorded as owned or controlled by the Services and Defense Agencies.<sup>1</sup>

<u>Type of Quarters</u>	<u>Number of Units</u>
Adequate	327,522
Substandard	28,744
Leased	13,566
Inactive	<u>13,934</u>
Total Units	383,766

In order to determine a compensation cost for family quarters, certain adjustments to the FY 1975 family housing costs and square footage were necessary. The use of FY 1975 construction costs in the calculation was not considered appropriate because all of the housing was not built in FY 1975. Review of available data and records disclosed that detailed family housing construction costs were only available for the period FY 1963 through 1975.

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<sup>1</sup> Inventory and Occupancy of Military Owned and Controlled Family Housing Units as required by DoD INST 4165.44 dtd January 28, 1975



Costs of family housing built prior to FY 1963 were not available because they were included in total military construction appropriations and not shown separately. Cost estimates based on known square footage constructed between 1951-1962 were developed and added to the available family housing construction costs (FY 1963 through 1975). The total amount of construction costs during the period 1951-1975 was amortized over 25 years using the straight-line depreciation method to derive an estimate of current year costs of the family housing program. The 25 year amortization period was chosen because earlier construction costs were not available, it encompasses approximately 85% of the known family housing inventory and is similar to the 30-year amortization period currently used for planning purposes by the U.S. Army Corps of Engineers and the U.S. Naval Facilities Engineering Command. A 25 to 30-year period for amortizing the construction costs may appear excessive when compared to the six to eight years<sup>1</sup> construction cost recoupment period currently used by private investors when constructing apartment complexes and the 15-year recoupment period commonly used for duplexes and detached houses.<sup>2</sup> There is no set period for depreciating investment property for income tax purposes. The period is determined on the basis of the individual's or corporation's particular operating conditions, experience, and recoupment policy.<sup>3</sup> Private investors want to recoup their investment as soon as possible in order to maximize profit. Given that DoD is not in the housing business to earn a

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<sup>1</sup> C. Miles Schmidt, Office of Management and Budget.

<sup>2</sup> OSD-OMB Military Housing Study Progress Report, July 22, 1975, p. 325.

<sup>3</sup> Chapter 19, Publication 17, Your Federal Income Tax, 1974 Edition.

profit on its investment, the longer amortization period more nearly reflects the economic life of the housing.

The straight-line depreciation method is one of several methods recognized by the accounting profession and the Internal Revenue Service.<sup>1</sup> This method was selected because it is the simplest and because there are no tax implications, which generally influence the selection of other methods, to be considered.

In addition to the amortization charge, an "opportunity cost" was included. DoD requires that a 10% discount rate be applied to the government's cost when preparing any economic analysis or program evaluation.<sup>2</sup> The costing of family quarters for compensation cost purposes was considered as a program evaluation. Therefore, a 10% interest charge was added to the estimated amortized construction costs for each year for the period FY 1950 through 1975 to arrive at an annual cost of family housing construction. DoD treats interest as a cost which is related to all government expenditures regardless of whether there are revenues or income by way of special taxes for a project to be self-supporting. This is based on the premise that no public investment should be undertaken without explicitly considering the alternative use of the funds which it absorbs or displaces. The prescribed rate of ten percent represents an estimate of the average rate of return on private investment before corporate taxes and after adjusting for inflation.<sup>3</sup>

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<sup>1</sup> Chapter 19, Publication 17, Your Federal Income Tax, 1974 Edition.

<sup>2</sup> DoD INST 7041.3, Economic Analysis and Program Evaluation for Resource Management, October 18, 1972. Based on OMB Circular A94.

<sup>3</sup> Ibid.

Members living in government housing receive no benefit from excess or inactive housing. Therefore, it was judged appropriate to exclude the O&M costs and estimated amortized annual construction costs related to these quarters from compensation cost calculations. As of June 30, 1975, there were 16,601 such quarters in the inventory; \$992,000 was expended maintaining these quarters<sup>1</sup> and estimated amortized annual construction cost was \$8,360,000.

The housing occupied by general and flag officers generally exceeds the maximum net square footage authorized for these ranks. This results from decisions to use existing assets even though they exceed currently prescribed standards and from the fact that some of these quarters are maintained for historical and museum display purposes, unrelated to criteria for quarters in kind for these ranks. DoD policy also authorizes general and flag officers additional space for the entertainment and ceremonial responsibilities of their positions. The authorized maximum net square footage for general and flag officers' family quarters is 2,100 square feet. The average gross square footage of the quarters occupied by these officers was 4,032 square feet, and the average yearly operating and maintenance cost was \$5,025 per set of quarters.<sup>2</sup> Treating the space above that authorized for the rank as space required for entertainment and ceremonial purposes, it was judged appropriate to deduct the O&M cost of excess space in determining the compensation cost of general and flag officer quarters. For similar reasons, a portion of the military personnel support costs for general and flag officer quarters were also deducted from the total military personnel support costs.

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<sup>1</sup> Family Housing Operations and Maintenance Average Unit Costs, FY 1975 Report, Housing Program Division, Facility Programming, DASD(I&H), OASD(I&L)

<sup>2</sup> General and Flag Officers' Quarters Cost Report, required by DoD INST 7220.16 w/2 changes, December 7, 1971, maintained by Housing Program Division, DASD(I&H), OASD(I&L). A separate cost report is prepared for each set of quarters and shows the total O&M costs spent on each set of quarters.



The adjusted costs of family housing for FY 1975 were:

	<u>Costs (\$000)</u>	
Construction Costs (Amortized)	\$133,986	
Less: Const. of Excess and Inactive	<u>(8,360)</u>	
Adjusted Construction Costs (Amortized over 25 years)		\$125,626
Debt Payment		164,035
Operations and Maintenance	789,645	
Less: O&M Excess and Inactive	992	
O&M excess space in General and Flag Officer Quarters	<u>(2,508)</u>	
Adjusted Operations and Maintenance		786,145
Military Personnel Support	21,235	
Less: Military Personnel Support of excess General and Flag Officer <sup>1</sup>	<u>(51)</u>	
Adjusted Military Personnel Support		<u>21,184</u>
Adjusted Family Housing Costs		1,096,990
Less: FHA Mortgage Premiums <sup>2</sup>		<u>3,000</u>
Final Adjusted Family Housing Costs		1,093,990

Deferred maintenance on family housing was about \$196,000,000 as of

June 30, 1974.<sup>3</sup> This amount is not included in the adjusted family housing costs because expenditures have not been made or approved and may never be made or approved. A related problem arises from the fact that maintenance costs for housing classified as substandard and housing that, if properly identified, would be classified as substandard, were not accounted for separately. The effect of this on cost, either positive or negative, is not known.

<sup>1</sup> There were no Military Personnel Support costs reported for excess and inactive housing per an interview with Mr. Holt F. Watts, Housing Program Div. DASD(I&H), OASD(I&L).

<sup>2</sup> Mortgage Insurance Premiums paid by the government for service members using Housing Administration loans are treated in a separate paper as a separate minor benefit.

<sup>3</sup> Telecon with Mr. Watts, Housing Program Div. DASD (I&H), OASD(I&L). July 21, 1975.



B. Calculation of the Compensation Cost by Pay Grade

As a first approximation, the cost per set of occupied quarters was calculated. The results were:

	<u>FY 1975</u>
Inventory: <sup>1</sup>	
Owned	370,520
Less: Owned Inactive Housing	16,601
Plus: Leased Housing	15,126
Available Supply of Quarters	<u>369,045</u>
Six Months' Running Average	
Occupancy Rate as of 31 Dec 75 <sup>2</sup>	97.65%
Effective Occupancy Rate <sup>3</sup>	98%
Average Number assigned to Quarters	360,370
	(\$000)
Final Adjusted Family Housing Costs	\$1,093,990
Utilities <sup>4</sup> (Included in Above Cost)	(\$246,379)
Average Monthly Cost per set of Occupied Quarters:	
Utilities Included	\$252
Utilities	\$ 57
Utilities Excluded	\$195

<sup>1</sup> Telcon with Mr. Watts, Housing Program Dir., DASD(I&H), OASD(I&L)  
July 27, 1976

<sup>2</sup> Ibid

<sup>3</sup> See discussion p. 20.

<sup>4</sup> Mr. Watts, op. cite.

In the market place, the rental charge would normally be set high enough so that the tenant would absorb costs of inoccupancy for the landlord. But the inventory of military housing is unrelated to the prospects of renting to the current force. This approach would therefore be inappropriate for military housing. However, having already excluded the cost of excess inventory from the calculations, it is an appropriate principle to apply to the active, in-use inventory, with suitable recognition that the size of the active in-use inventory may not always be adjusted to changing force sizes. To provide for this, the DOD objective occupancy rate for family quarters was used as a floor.<sup>1</sup>

The Staff also considered the use of gross square feet cost rates to establish cost recovery valuations by pay grade. This approach was rejected because there is no guidance which allocates space to members on the basis of gross square feet by pay grade. The calculations are shown as a matter of interest:

Final Adjusted Family Housing Costs	\$1,093.99 Mil.
Less: Leased Housing Costs <sup>2</sup>	<u>55.11 Mil.</u>
Cost of Active, Owned Housing	\$1,038.88 Mil.
Gross Square Footage	509.11 Mil
Cost/Gross Square Foot	\$2.04

<sup>1</sup> The objective occupancy rate for DOD is 98%. Should occupancy fall short of that rate, the excess should be shifted to excess inventory costs before making this calculation.

<sup>2</sup> Holt Watts, op.cit., 7-27-76. The gross sq.ft., as cited, excludes leased and inactive footage; therefore cost of leased housing is subtracted too, as was cost of inactive sq. footage.

Gross square footage includes the total area of all floors to the normal outside face of the building, including basements and useable attic space.<sup>1</sup>

Authorized maximum net square footage standards are prescribed by law.<sup>2</sup> They provide an equitable and practicable basis for valuations by pay grade. The average maximum net square footage of the active in-use government owned housing was 1,193.5 square feet. (The details of this calculation are shown at Tab E.) Cost per maximum net square feet can be calculated by dividing average cost per occupant by 1,193.5 square feet. The results are:

	<u>Annual Cost Per maximum Net Square Feet Authorized</u>
Including Utilities	\$2.53
Cost of Utilities	\$ .57
Without Utilities	\$1.96

These factors can be used to establish valuations on a cost recovery basis as summarized in the following table:

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<sup>1</sup> Inventory of Military Real Property Rpt., 6-30-74, as required by DoD Inst. 4165.14 w/3 chgs, 12-21-66.

<sup>2</sup> 10 USC 4774

Table 4.5 Pay Grade Valuations for Quarters In-Kind Based  
on Cost Recovery Techniques

Pay Grade	Average <sup>1</sup> Sq. Footage	Smoothed <sup>2</sup> Sq. Footage	Monthly Valuation <sup>3</sup>		
			Total	Less Utilities	Utilities
C/S	{ 2,100 }	{ 2,100 }	\$582.75		
O-10			547.75		
O-9			512.75		
O-8			477.75		
O-7			442.75	\$343.11	\$99.64
O-6	1,700	1,700	358.42	277.75	80.67
O-5	1,526	1,526	321.73	249.33	72.40
O-4	1,518	1,518	320.05	248.02	72.03
O-3	1,140	1,140	240.35	186.26	54.09
O-2	1,031	1,031	217.37	168.45	48.92
O-1	996	996	209.99	162.73	47.26
W-4	1,284	1,291	272.19	210.93	61.26
W-3	1,300	1,291	272.19	210.93	61.26
W-2	1,293	1,291	272.19	210.93	61.26
W-1	1,280	1,291	272.19	210.93	61.26
E-9	1,302	1,318	277.88	215.34	62.54
E-8	1,322	1,318	277.88	215.34	62.54
E-7	1,319	1,318	277.88	215.34	62.54
E-6	1,213	1,213	255.74	198.19	57.55
E-5	1,109	1,109	233.81	181.19	52.62
E-4	1,005	1,005	211.89	164.20	47.69
E-3	977	977	205.98	159.63	46.35
E-2	962	963	203.03	157.34	45.68
E-1	963	963	203.03	157.34	45.69
Average	1,193.5		\$252.	\$195.	\$57

1 This data is developed at Tab E. It is a function of the family size distribution by grade in the current force, and the relatively narrow range of authorized quarters sizes. Thus the intergrade differentials are not as great as they are in basic pay.

2 Minor subjective modification to smooth the data for the grades E-7 through E-9, W-1 through W-4.

3 Costs per square feet times average square feet by pay grade. The ranks of O-7 and above are smoothed on a subjective judgment of average quarters assignment practices.



Based on the prescribed standards, there is no significant difference in the average square footage attributable to flag and general officers. On the average across all duty stations there is usually an increasing quality of quarters assigned to these officers consistent with increasing rank. To recognize this it was judged appropriate to spread the scale by increasing the monthly valuation by grade. A differential of \$35 per grade was chosen based on observation that the authorized square footage differential between O-6 and flag/general grades for 4 bedrooms -- the flag/general standard -- is 150 square feet which, at current cost recovery rates, is about \$35 per month, and choosing to continue that interval upward.

The Warrant Officer grades are all on the same standard. The variation introduced by family size (TAB E) is so small that on balance it appears more reasonable to treat the Warrant Officer Community on the basis of the overall average. The top 3 enlisted grades E-7 through E-9 were resolved in the same manner for the same reasons.

Table 5 compares the current QIK valuations with those developed by the above methodology. The rates have been rounded so that they are divisible by 30 for ease in converting to daily rates in accordance with current law.<sup>1</sup>

The OSD-OMB Housing study did not estimate a by grade value for family QIK; however, it did estimate an overall average fair market rental value including utilities of \$274.00<sup>2</sup>.

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<sup>1</sup> 5 U.S.C. 5505 and 37 U.S.C. 1004

<sup>2</sup> OSD-OMB Military Housing Study Rpt (Draft), Vol III, 10-31-75, p. 151

TABLE 5

Compensation Cost of Married In-Kind QuartersMonthly Rates

<u>Pay Grade</u>	<u>Present Valuation (\$)<sup>1</sup></u>	<u>Recommended Valuation (\$)<sup>2</sup></u>	<u>Difference</u>	
			<u>\$</u>	<u>%</u>
<u>Commissioned Officers</u>				
C/S	500	582.90	82.90	17
O-10	400	547.80	147.80	37
O-9	350	512.70	162.70	46
O-8	300	477.90	177.90	59
O-7	250	442.80	192.80	77
O-6	230	358.50	128.50	56
O-5	203	321.60	118.60	58
O-4	183	320.10	137.10	75
O-3	161	240.30	79.30	49
O-2	150	217.50	67.50	45
O-1	139	210.00	71.00	51
<u>Warrant Officers</u>				
W-4	139	272.10	133.10	96
W-3	139	272.10	133.10	96
W-2	139	272.10	133.10	96
W-1	139	272.10	133.10	96
<u>Enlisted</u>				
M/S	138	277.80	139.80	101
E-9	138	277.80	139.80	101
E-8	138	277.80	139.80	101
E-7	138	277.80	139.80	101
E-6	136	255.60	110.60	88
E-5	133	233.70	100.70	76
E-4	126	211.80	85.80	68
E-3	117	206.10	89.10	76
E-2	116	203.10	87.10	75
E-1	115	203.10	88.10	77

1 Developed in 1956, see Tab D for details

2 Based on 1975 government cost per net square foot.

C. Conclusions:

The QRMC Staff concludes that:

- o The compensation costs currently in use for family quarters in computing RMC are outdated, and
- o The OSD-OMB Housing Study estimate of family quarters cost is not suitable for allocating family housing costs by pay grade.
- o The cost per square foot of the maximum net authorized square footage is preferable to the cost per square foot of the gross square footage in determining the compensation cost of quarters for each pay grade.

D. Recommendations:

The QRMC Staff recommends that:

- o The compensation cost of family quarters, based on 1975 government costs shown in Table 5, be used for compensation costing purposes.
- o The compensation cost estimates of family quarters based on authorized space by paygrade, as shown in Table 5, be used in future QRMC and RMC calculations until professional appraisals are available.

E. Compensation Cost of In-Kind Bachelor Quarters

The only costs of bachelor housing currently available are construction costs. These costs by themselves do not provide sufficient data to accurately compute bachelor housing costs since they are only one part of total costs. Two alternative methods of estimating total bachelor housing costs were considered:

- o HSG Cost estimates based on a survey of 11 installations
- o Family housing costs as a proxy for bachelor housing costs

The second approach assumes that the average cost per net square foot of family housing approximates the average cost per square foot of bachelor housing. This assumption is based on the judgment that the basic costs of utilities, maintenance, refuse collection, fire protection, and administration should be about the same on a square footage basis. The cost per unit of utilities (water, sewage, electricity, and natural gas , oil, or coal) should be about the same for both family and bachelor housing at an installation because the installation normally has only one source for each utility purchased. Other operating costs of bachelor housing such as rodent control, snow removal, police and fire protection should be basically the same as for family housing on a square footage basis since normally the same organization provides these services to both family and bachelor housing.



It is acknowledged that the cost per square foot to construct bachelor housing is higher than for family housing. The average budgeted cost per square foot to construct bachelor housing in FY 1974 was \$28.75 compared to an average budgeted cost of \$24.50 per square foot to construct family housing in the same fiscal period.<sup>1</sup> However, this difference is considered small enough that in the absence of better data, it can be disregarded.

Real property inventory records show that there were about 285,117,000 gross square feet of enlisted bachelor housing and about 55,925,000 gross square feet of officer bachelor housing as of June 30, 1975.<sup>2</sup> The "gross square footage" is total floor area of a building to the normal outside face of the building, including basements and usable attic space.<sup>3</sup> Space in bachelor quarters includes common latrines, day rooms, orderly rooms, and supply rooms. Living spaces aboard ships are not included in these figures.

There are approximately 916,491 personnel without dependents currently on active duty. About 114,863 of these members are receiving a Basic Allowance for Quarters (BAQ) and do not occupy government quarters. Another 640,294 members without dependents are not authorized BAQ because they are authorized to occupy government quarters. There are 161,034 members without dependents who are not authorized BAQ because

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<sup>1</sup> FY 76 Military Construction Appropriation Justification Books for each service

<sup>2</sup> Inventory of Military Real Property, as of June 30, 1975, required by DoD INST 4165.14 w/3 changes, December 21, 1966

<sup>3</sup> Ibid., Encl. 1

they are assigned to sea duty.<sup>1</sup>

The QRM C Study group has generally agreed that shelter on board ships and in the field should not be considered as in-kind housing for compensation purposes<sup>2</sup> because it is more appropriately a government cost of doing business. Therefore, bachelor personnel occupying these types of quarters were excluded insofar as possible from the calculation of the compensation cost of bachelor housing. There is an equity issue related to this, discussed in Part II of this paper.

Assignment to some "short tour areas" where dependents are not authorized subjects personnel to many conditions similar to those found in field duty. Some short tour areas contain sufficient elements of hazard through military or quasi military action, risk of disease, extreme environmental conditions, or primitive habitation that safe and reasonable comfort for dependents cannot be achieved. The duty in these areas often includes long duty hours, total lack of choice in living facilities, limited entertainment facilities, and in some cases sensory deprivation, family separation, and limited ability to remain in dwelling areas because of long duty hours. Examples of the kinds of duty assignments to which this description is appropriate might include the Antarctic, Diego Garcia, and remote posts in Alaska or Iceland. (All unaccompanied tour areas are listed in Tab M.)

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<sup>1</sup> DASD(MPP) CS FY 76-2 Forces Report, based on consolidation of family size taken from Exhibit MP-22, part of the detailed support of the Services' Budget submissions to OSD.

<sup>2</sup> Minutes of the April 10, 1975 meeting of the Study Group, p. 2. This is consistent with the distinction between occupancy of government quarters and assignment to sea or field duty in 37 USC 403.

These conditions may be judged sufficiently similar to conditions found in duty in the field to warrant their exclusion from bachelor housing cost determinations. The furnishing of government housing in these remote or culturally/sensory deprived environments is necessary both to maintain the force immediately available for military operations and to ensure the health and safety of the individual. Based on these subjective considerations bachelor housing in these "short tour areas" was excluded from the calculation<sup>1</sup>. There are approximately 26,784 bachelor members serving in all areas where dependents are not authorized. Using this number to represent the "short tour" element, the net number of bachelor personnel occupying quarters can be estimated for costing purposes:

TABLE 6  
Bachelors in Government Quarters<sup>2</sup>

	<u>Officer</u>	<u>Enlisted</u>	<u>Total</u>
Number of Members Without Dependents Not Receiving BAQ	23,302	778,026	801,328
Less Members at Sea	<u>3,657</u>	<u>157,377</u>	<u>161,034</u>
Bachelors in Government Quarters	19,645	620,649	640,294
Less Members in Short Tour Areas	558	26,226	26,784
Net Number of Members	<u>19,087</u>	<u>594,423</u>	<u>613,510</u>

<sup>1</sup> All unaccompanied tour locations are listed in Tab M. Many have only a small number of personnel. For estimation purposes, the number of personnel assigned to South Korea, South Vietnam, Thailand, Laos, Cambodia, Johnston Islands, Diego Garcia, Ryukyu Islands (Okinawa) were used to represent such stations. The resulting number represents an upper-bound. Detailed, station by station evaluations should be made if such a policy were implemented in a compensation system requiring payment of BAQ to members on such duty.

<sup>2</sup> Family size percentages shown in OASD(M&RA)MPP RMC calculations were applied to the total members in at sea and short tour status to determine the number of bachelors in these categories. The Navy sea duty population is disproportionately heavy in junior personnel, and junior grades have a higher than average proportion of unmarried personnel. Thus, this table underestimates the number of junior members at sea.

Current DOD directives do not allot living space to bachelors on a gross square footage basis, but on a maximum "net living space" basis by pay grade. (See Tab F.) This maximum "net living space" is the inside area of a building, excluding closets, orderly rooms, messing facilities and other non-quartering functions. Therefore, by pay-grade cost recovery valuations for bachelors must follow the same procedures as for family quarters. The maximum "net living space" for bachelors is the approximate analog of similar standards of family quarters for E-7s and above. For E-6 and below "net living space" standard is more accurately described as "net sleeping space" because it does not include a per capita share of common latrines and lounge facilities. An appropriate add-on to "net sleeping area" is required to parallel the valuation procedure for family quarters. Broad DOD construction guidance in DOD Instruction 4070.1-M dated October 1, 1972, suggests that gross square feet should not exceed 150-155 square feet per man. On a 3-man room basis, the ratio of net sleeping space to gross square feet should not exceed 270:450 or 60 square feet per man. The 60 square feet includes space for halls, stairwells, etc., as well as latrines and lounges. Thus 60 square feet exceeds the appropriate factor for newer quarters and probably exceeds the average for the existing inventory.



The problem was presented to numerous bachelor quarters experts who set construction standards, monitor typical plans and prepare plans. It became clear that there is no hard data, and no broadly applicable standard. Within the standard guidelines, some are more efficient than others with respect to living space, particularly for warmer climates, where stairwells and walkways can be exterior to the gross area dimensions. Some of the designs used indicated a common lounge area of 20 square feet and latrine area of 10-15 square feet per man. ( $90 + 20 + 10 \text{ to } 15 = 120 \text{ to } 125$ ) Those factors, together, did not seem excessive to those consulted. An efficiency factor of 90% applied to gross square feet was attained by one of two designs now being used by the Army.<sup>1</sup> An efficiency factor of 80% seems generally attainable ( $150 \text{ gross square feet} \times .80 = 120 \text{ net square feet}$ .) Thus, a 30 square foot add-on is a conservative average. Quarters built in the 1950's and early 1960's may fall short of these guidelines. The prevailing opinion of the experts queried was that a 30 square foot add-on would be reasonable on the average. Many plans would exceed it and many may have less, though not significantly less.

Considering the necessity of incorporating an adjustment to "net living space" to appropriately represent the costs of bachelor quarters, and the available data to quantify that adjustment, it is estimated that, on the average, 30 square feet per occupant should be added to the "net living space" criterion. The aggregate maximum net living space

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<sup>1</sup> Telephone interview with the Chief of the Architectural Section, Office Chief of Engineers, Army, August 1, 1976

required to house bachelor military personnel can then be computed by multiplying the number of bachelors in each pay grade currently occupying government quarters ashore excluding members in short tour areas.

This computation shows that 69,953,014 square feet are required to house bachelor enlisted personnel, and 5,842,750 square feet are required for bachelor officers.

These space requirements account for only 22% of the total gross square feet appearing on the real property records. An attempt was made to judge the reasonableness of this figure.

a. The inventory of gross square footage includes space in bachelor quarters used for offices, day rooms, supply rooms, orderly rooms and other space not used to house bachelors. Further there is uninhabitable space included in gross square footage such as basements, attics, closets, service areas and the like. Using family housing construction planning factors of the U.S. Army Corps of Engineers and the U.S. Naval Facility Engineering Command as a proxy, a figure of 18% of total gross square footage not usable for living space is used to compute the net inhabitable area.<sup>1</sup>

b. There are a number of quarters that are considered surplus, based on a lack of personnel at certain locations. It is estimated that 14% of the existing adequate military bachelor housing is considered surplus.<sup>2</sup>

<sup>1</sup> Telephone interview, Chief, Family Housing Division, Military Construction Directorate, Office of the Chief of Engineers, July 16, 1975.

<sup>2</sup> Based on figures from Bachelor Housing Requirements ODASD(I&H) OASD (I&L) of February 10, 1976

c. The total gross square footage also includes planned requirements for transients and reserve forces. While the Staff was not able to determine a total DoD estimate for these requirements, an estimate was obtained from the Navy which indicates that approximately 38% of the officer space requirements and 43% of the enlisted space requirements are programmed for transient and reserve forces.<sup>1</sup> Since transients include both married members otherwise accounted for, bachelors on sea duty temporarily occupying quarters and transient personnel enroute to new duty stations, the space used for transients and reserves should not be included in the compensation costs of bachelors. In addition, some bachelor quarters are occupied by "geographical bachelors"; those married members who are separated from their families either because family housing is not available at their duty station or for other reasons, and are receiving BAQ. A conservative estimate is that these individuals account for 5% of the total DOD bachelor housing requirements.<sup>3</sup>

d. Approximately 30% of the total DOD bachelor assets are classified "substandard -- cannot be made adequate".<sup>3</sup> While it is impossible to further refine this last statistic, it does have an effect on the differences between the total gross square feet available and the net allowable square foot figure used to estimate compensation costs as previously developed.

Based on all of the above factors, the estimate that 22 percent of the total gross square feet of bachelor housing represents bachelor quarters provided to the current force for compensation purposes appears to be reasonable.

As detailed in the section on Compensation Cost of In-Kind Family quarters, the cost per gross square foot of family housing was \$2.04 and the cost per authorized maximum net square foot of family housing was \$2.52

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<sup>1</sup> Naval Facilities Engineering Command, Code 21E, Feb. 27, 1976.

<sup>2</sup> OASD(I&H) OASD(I&L), Feb. 27, 1976.

<sup>3</sup> OASD(I&H) Report Bachelor Housing Requirements, Feb. 10, 1976.



using FY 1975 family housing cost data. These costs include amortization of capital investment and operation and maintenance costs. Applying these costs per square foot to the total gross square feet and to the maximum net square feet of bachelor housing provides the following estimated costs:

TABLE 7

Estimated Aggregate Bachelor Housing Costs Using  
Family Housing Cost as a Proxy  
(\$Million)

	<u>Officers</u>	<u>Enlisted</u>	<u>Total</u>
Gross Square Feet @ \$2.04	\$114.1	\$581.6	\$695.7
Net Square Feet @ \$2.52	\$ 14.8	\$177.0	\$191.8 <sup>1</sup>

The HSG estimate of bachelor housing costs was \$828 million to \$1,174 million (See p.13). The cost is estimated at \$695.7 million when the family housing costs per gross square feet is used as a proxy for bachelor housing costs. This overstates costs properly attributed to bachelor housing because the 341,042,000 gross square feet in inventory is not used to house bachelors. Therefore, occupants should not be charged for space not used for housing and the estimated compensation cost of bachelor housing based on space actually occupied does not appear to be unreasonable.

<sup>1</sup> Excludes quarters at sea and in "short tour" areas.



HSG cost estimates were based on survey data provided by 11 CONUS installations; data from overseas areas were not included. Seven of the 11 installations were located in California, with five of the seven being located in the San Diego area. Only three installations could be classified as "non-coastal," and no southern installations were considered. Most of the installations surveyed were located in geographical areas that have generally mild temperatures which affect total estimated operations and maintenance costs, especially utility costs. Thus, the small size of the sample and its limited distribution make its representativeness doubtful.

The cost estimates provided by the 11 installations varied widely. For example, one installation reported that it cost \$87 per year to operate and maintain each bachelor enlisted housing space while another installation reported that it cost \$714 a year to maintain each of its bachelor enlisted spaces.<sup>1</sup> Similar differences were found in the review of bachelor officers' housing costs. Per square foot cost estimates ranged from \$.63 to \$6.80. They were estimated by the submitting installations, and the basis--gross square footage or net living space--is not identifiable. Further, the square footages reported by these 11 installations do not correspond to data in the Real Property Inventory Records.

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<sup>1</sup> OSD-OMB Military Housing Study Progress Report (Draft), Vol. II, October 31, 1975, p. 69

The alternative costing methodology using family housing costs is based on actual costs that are managed in detail within the Department of Defense. They represent the full range of building, operating, and environmental factors, worldwide. These costs cover the full range of cost elements that should be considered in developing bachelor housing costs estimates, including operating costs, maintenance costs, and the amortization of capital investment. Construction costs are similar, and the use or purpose of the facilities is similar. Thus, it is judged that operating costs are likely to be similar. Because of the broad base of their cost rates, the family housing costs were thus more likely to be an accurate representation of actual bachelor quarters' square footage costs than those costs based on the very limited sample developed in the HSG alternative. In the absence of any dependable bachelor housing cost data, it appears reasonable to use family housing square footage costs to estimate bachelor housing costs for compensation costing purposes. When bachelor housing management information becomes available, future compensation analyses should be based on that more accurate information.

**F. Calculation of the Compensation Cost by Pay Grade.**

The total estimated costs of bachelor housing of about \$191.8 million (see derivation on page 30) were allocated among the estimated 613,510 members authorized government quarters ashore other than those in "short tour" areas. The compensation cost by pay grade was estimated by using the maximum net square footage authorized for each grade.<sup>1</sup> As has been

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<sup>1</sup> DoD INST 4165.47, "Adequacy, Assignment and Occupancy of Bachelor Housing (I&L)," May 12, 1972, Encl 1 See Tab F.

described, the QRMC Staff judged this the most equitable and practicable method of computing the cost of bachelor housing by pay grade for compensation cost purposes. The recommended compensation costs of in-kind bachelor quarters are shown in Column 3 of Table 8. The rates have been adjusted, as was done with married quarters, to make them divisible by 30 for calculation purposes. An alternative method which has not been developed here, would be to consider the differing amenities provided by pay grade such as the number of persons per room, etc., as described in Tab F, in addition to the authorized square footage. This method would allocate the same total cost of bachelor housing to the same population but result in a generally ascending by-grade valuation. It would somewhat increase the costs attributed to grades E-5, E-6 and O-8 to O-10 while somewhat reducing costs for members in grades below those which are adjusted. While it was considered desirable to do this, as was done for flag and general officer family quarters, two considerations militated against applying the subjective judgments necessary to do so:

a. The entire officer and warrant officer standard is in only two categories, compared to six for family quarters.

b. The authorized square footage is much smaller and in a much smaller range than is the cost for family quarters.

Using family housing cost rates as a surrogate for bachelor housing costs tends to understate those costs. Family housing cost rates do not fully account for more expensive per foot construction costs, laundry service, or furniture amortization. The Air Force estimates bachelor

quarters average annual laundry cost at \$48.23, one time furnishing cost at \$950 for enlisted and \$1,500 for officer quarters. The Internal Revenue Service indicates the useful life of furniture at 5 to 7 years.<sup>1</sup> Applying these factors to bachelor quarters rates would increase monthly costs an average of \$15.34 for enlisted and \$21.90 for officers. These data are not sufficiently reliable to use as a basis for inclusion in bachelor QIK costs.

Some bachelors are currently occupying inadequate quarters--that is, quarters which do not meet DoD space, privacy, or furnishing standards. However, DoD does not monitor compliance with its policy on bachelor housing standards, and reliable data on deviations from DoD standards are not available. HSG data indicates that, based on services' inventories, from 240,000 to as many as 400,000 military personnel may be assigned to substandard bachelor quarters.<sup>2</sup>

Some proportion of bachelor members assigned to in-kind quarters do not occupy them, preferring to obtain quarters in the private market. The HSG estimated that as many as 11 percent of bachelors E-5 and E-6, and 31 percent of the bachelors E-1 through E-4 not receiving BAO are voluntarily residing in the civilian community at their own expense.<sup>3</sup>

If these data are accurate, the compensation cost estimates for bachelor quarters is substantially overstated.

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1 IRS Publication 456.

2 OMB OSD Military Housing Study Report (Draft), Vol. III, 31 Oct 75, Appendix IIB2 and Vol I, p. 7.

3 Ibid., Vol II, p. 116.



TABLE 8

Compensation Cost of Bachelor QuartersMonthly Rates<sup>1</sup>

<u>Pay Grade</u>	<u>1956 Cost Estimates<sup>2</sup></u>	<u>Cost</u>	<u>Difference</u>	
		<u>Estimate Based</u>	<u>Between 1975 and 1956</u>	
		<u>On 1975 Data</u>	<u>\$</u>	<u>%</u>
<u>Officers</u>				
O-10	\$56	\$84.30	28.30	51
O-9	56	84.30	28.30	51
O-8	56	84.30	28.30	51
O-7	56	84.30	28.30	51
O-6	56	84.30	28.30	51
O-5	56	84.30	28.30	51
O-4	56	84.30	28.30	51
O-3	56	84.30	28.30	51
O-2	56	52.80	-3.20	-6
O-1	56	52.80	-3.20	-6
<u>Warrant</u>				
<u>Officers</u>				
W-4	56	52.80	-3.20	-6
W-3	56	52.80	-3.20	-6
W-2	56	52.80	-3.20	-6
W-1	56	52.80	-3.20	-6
<u>Enlisted</u>				
E-9	18	42.30	24.30	135
E-8	18	42.30	24.30	135
E-7	18	42.30	24.30	135
E-6	18	25.20	7.20	40
E-5	18	25.20	7.20	40
E-4	18	25.20	7.20	40
E-3	18	25.20	7.20	40
E-2	18	25.20	7.20	40
E-1	18	25.20	7.20	40
E-1 (Recruit)	18	21.60	3.60	20

<sup>1</sup> The cost valuation of quarters for members at sea, in the field and in unaccompanied tour areas is zero.

<sup>2</sup> Developed in 1956 and currently used for RMC valuations in DoD, see Tab D for details.

#### G. Conclusions.

The QRM Staff concludes that:

- o The use of the family in-kind housing compensation cost per square foot as a surrogate for the compensation cost of bachelor in-kind housing is preferable to other cost estimates currently available.
- o The cost per square foot of authorized maximum net square feet of bachelor housing is preferable to the cost per square foot of the gross square footage in determining the compensation cost of bachelor quarters for each pay grade.
- o If government costs of quarters are used as the basis for setting military compensation, it would be essential to establish management controls on bachelor quarters analagous to those on family quarters.
- o The shelter provided to members on duty in the field and those on sea duty is not compensation.
- o That cost of bachelor housing for members in specifically designated "short tour" areas should be treated as a government cost of doing business.

#### H. Recommendations.

The QRM Staff recommends that:

- o The compensation cost of bachelor quarters based on 1975 family cost data shown in Table 8 be used for compensation costing purposes.

- o The compensation cost estimate of bachelor quarters based on authorized space by pay grade shown in Table 8 be used in future QRMC and RMC calculations until professional appraisals are available.

## VII. Compensation Value of Quarters.

Compensation value will be considered in two different ways: (a) objective value--an estimate of actual value-- and (b) subjective value-- the value the service member perceives his BAQ or quarters is worth.

### A. Objective Value of Quarters.

The objective value of quarters can be estimated by summing the value of quarters and that portion of the tax advantage appropriately attributed to the value of quarters. The QRMC analysis of Tax Advantage includes the evaluation of the tax free nature of quarters or quarters allowances. Therefore, the tax advantage will not be treated here.

1. Objective Value of BAQ. The objective value of quarters for a member not living in government quarters is related to his actual expenditures for housing. The objective value of quarters, either to the government or to the service member, is not necessarily related to his allowance for quarters. However, the objective compensation value of the BAQ for those receiving it is clearly equal to the cash amount of the BAQ.

2. Objective Value of Quarters In-Kind (QIK). The objective value of QIK is an estimate of the actual value to the service member of the quarters being occupied.

a. Compensation Value of Family QIK. The objective value of family QIK can be represented by:

- (1) The government cost to provide the quarters.
- (2) The BAQ to which the member loses entitlement.
- (3) The rents being paid by members of like grades.
- (4) The locally appraised rental value of the quarters.

The government costs to provide family quarters which were developed in a previous section could be used to represent their value to the service member. Under the present methodology of computing RMC, this is the value DoD places on the quarters and it thus could be considered to be the objective value. This estimate of objective value of quarters based on government costs is shown in column 3 of Table 9.

Since, for the most part, government family quarters are occupied voluntarily, the BAQ the individual gives up to occupy government family quarters can be considered as a lower bound of the objective value of QIK.



The occupancy rate of currently active quarters is 97.9 percent.<sup>1</sup> It is estimated that most family quarters in CONUS are voluntarily occupied,<sup>2</sup> and it is thus possible to conclude that service families believe the objective value of the quarters to be at least equal to the BAQ they voluntarily give up. The current BAQ rates are shown in column 2 of Table 9.

The rent being paid by members of like grades for housing in the local area can be considered as an upper bound on the amount of housing service members are willing to purchase. This is based on the assumption that the member renting non-government quarters is either desirous of "more" house than authorized or available in government quarters, cannot obtain government family quarters, cannot afford any higher rent or seeks to avoid the military environment during their "off duty" time. Thus it may be argued that government family quarters may not be worth more than the current rents these members are paying for non-government quarters. "More" house means more square feet, more privacy, better neighborhood, more amenities, etc. Information on average rental costs for June 1975 is presented in the fourth column of Table 9. This can be compared with a subjective value of government family housing as determined by a survey, shown as the fifth column of Table 9. This comparison indicates that most officers spend more for non-government quarters than they believe government quarters are worth while most enlisted service members spend less for non-government quarters than they believe government quarters are worth.

The best method of placing an initial objective value on family quarters is to have professional rent appraisers in the local area appraise the quarters. Unfortunately, no such appraisal data exists. The only available data

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<sup>1</sup> Telecon with Mr. Pat Meehan, Housing Program Division, ODASD(I&H), 31 Oct 75, p. 51.

<sup>2</sup> Ibid.

on appraised value of government quarters is the data obtained by study teams in the course of the OSD-OMB Housing Study. It estimated that the average government family quarters would rent for \$244 per month and that utilities would cost \$30 per month (based on 1974 CONUS average cost per month) for a total average of \$274 per month.<sup>1</sup> Estimates were not made on a by-grade basis. The HSG visited six installations (Ellsworth AFB, South Dakota; Camp Pendleton, California; Tinker AFB, Oklahoma; Fort Riley, Kansas; San Diego, California; and Fort Ord, California) and estimated a rental average for each location based on discussions with housing officials, local real estate agencies, and inspections of government and private housing. The limited coverage of this data and the methods used limit its value; however, in the absence of more precise data, it does provide one working estimate.

It is difficult to identify which of the above methods of determining an objective compensation value of QIK is best. No data are available on actual rent appraisals of government quarters, so that preferred method is not available. The only appraisals of the rental value of government quarters, by grade, are the subjective appraisals made by the military families actually occupying the quarters and their evaluations may or may not be similar to appraisals made by professional appraisers. Of the three other choices (BAQ rates, government costs, local rents),

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<sup>1</sup> OSD-OMB Housing Study Report, (Draft) Vol. III, 31 Oct 75, p. 151.

it is probable that BAO rates understate the value for both officer and enlisted members because most quarters are, in a sense, voluntarily occupied, and the subjective value to the member, by voluntarily occupying the quarters, is greater than BAO forfeited. For those renting private quarters, the QIK is worth something less than rents they are now paying in the local market since they are assumed to be actually renting "more" house or are willing to pay to avoid the military control over their "off-duty" life style that exists in government quarters.

Therefore, on balance it appears that, in the absence of appraisals, the objective compensation value for family housing is adequately represented by the government cost since these amounts approximate the cost avoidance by members living in the government quarters including utilities, maintenance and, in some cases, furniture. It further provides a consistent measure of value that is void of personal preferences and disposable income constraints. The selected objective compensation values, based on government costs, are shown in the last column of Table 9.

**TABLE 9**  
**Objective Value of Family Quarters**

<u>Pay Grade</u>	<u>BAQ Rate<sup>1</sup></u>	<u>Government Cost<sup>2</sup> Recovery</u>	<u>Average Off Post Rent<sup>3</sup></u>	<u>Occupant Appraised Value<sup>4</sup></u>	<u>Selected Objective Value</u>
<b>Commissioned Officers</b>					
C/S	\$319.20	\$582.90			\$582.90
0-10	319.20	547.80	-	-	547.80
0-9	319.20	512.70	-	-	512.70
0-8	319.20	477.90	-	-	477.90
0-7	319.20	442.80	-	-	442.80
0-6	286.20	358.50	406	361	358.50
0-5	264.60	321.60	383	304	321.60
0-4	238.80	320.10	333	286	320.10
0-3	216.60	240.30	278	246	240.30
0-2	194.70	217.50	238	229	217.50
0-1	156.90	210.00	214	225	210.00
<b>Warrant Officers</b>					
W-4	230.40	272.10	262	-	272.10
W-3	212.40	272.10	297	273	272.10
W-2	192.60	272.10	269	234	272.10
W-1	178.20	272.10	241	-	272.10
<b>Enlisted</b>					
E-9	204.00	277.80	279	248	277.80
E-8	190.80	277.80	271	261	277.80
E-7	178.80	277.80	241	246	277.80
E-6	166.20	255.60	222	226	255.60
E-5	153.60	233.70	193	205	233.70
E-4	134.40	211.80	172	184	211.80
E-3	116.10	206.10	161	182	206.10
E-2	116.10	203.10	160	170	203.10
E-1	116.10	203.10	156	-	203.10

<sup>1</sup> 1 October 75 BAQ with dependents rates.

<sup>2</sup> From Cost Section of this paper

<sup>3</sup> From June 75 Naval Facilities Engineering Command Survey Data for all services.

<sup>4</sup> January 75 DoD Family Housing Preference Survey, See Table 11.



b. Compensation Value of Bachelor QIK. The objective value of bachelor QIK can be represented by:

- (1) The government cost to provide the quarters.
- (2) The BAQ forfeited by the member.
- (3) Estimates of the market rental value of bachelor quarters.

The government costs to provide bachelor quarters, developed in the cost section, and based on authorized square footage by pay grade could be used to represent the value of government quarters to the service member. These cost estimates are shown in the third column of Table 10.

The BAQ the individual gives up when occupying government quarters can likewise be considered the objective value since this is the government's current "rental" charge. These figures are presented in the second column of Table 10.

The last candidate for consideration is some estimate of the quarters' rental rate. The OSD-OMB Housing Study<sup>1</sup> developed one such estimate for officers and enlisted members based on "typical rents". It assumed 400 square foot, one-bedroom apartments for officers

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<sup>1</sup> OSD/OMB Military Housing Study, Vol. III, October 31, 1975, p. 153

and a 180 square foot, double occupancy room for enlisted members, and used an estimate of government O&M and utility costs to estimate median rents. Their estimate was \$155 per month for officers and \$54 per month for enlisted. It should be noted that these average "apartment" sizes exceed the maximum net authorized square footage for government quarters for officers below the grade of O-3. The assumptions underlying this estimate and the lack of by grade evaluations limit its usefulness. However, in the absence of better data it can provide one working estimate.

A review of Table 10 suggests that the current without dependents BAQ rates are significantly higher than the government costs and, on the average, they are above the average estimated rental values developed by the OMB/OSD Housing Study.<sup>1</sup> Further, a substantial proportion of enlisted bachelor members assigned to government quarters, and thus not entitled to BAQ, are still willing to spend a portion of their basic pay to obtain quarters in the local community. For these reasons, the BAQ is not considered to be an acceptable proxy for the objective compensation value of bachelor housing. As noted in the bachelor quarters compensation cost section of this paper, from 240,000 to 400,000 military personnel may be assigned to substandard bachelor quarters. Therefore, any overall estimate of rental value based on the Housing Study's average rental value for officers and enlisted members is not considered appropriate. The remaining candidate is the government cost figures previously developed and presented in the third column of Table 10.

If the government were to pay BAQ to those in bachelor quarters and rent the quarters for these amounts, they would recover all housing costs while providing, for most single members, an increase in disposable income.

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<sup>1</sup> OSD-OMB Military Housing Study Report (Draft) Vol. III, Oct 31, 75, p. 153.

TABLE 10

Objective Value of Bachelor Quarters

<u>Pay Grade</u>	<u>BAQ<sup>1</sup></u>	<u>Government Cost Recovery<sup>2</sup></u>	<u>OSD/OMB as Presented</u>	<u>Estimate<sup>3</sup> QPMC Reallocation</u>	<u>Selected Objective Value</u>
O-7 to					
O-10	255.30	84.30	155	202.80	84.30
O-6	234.60	84.30	155	202.80	84.30
O-5	219.60	84.30	155	202.80	84.30
O-4	198.00	84.30	155	202.80	84.30
O-3	175.50	84.30	155	202.80	84.30
O-2	153.60	52.80	155	126.60	52.80
O-1	120.60	52.80	155	126.60	52.80
W-4	191.10	52.80	155	126.60	52.80
W-3	172.20	52.80	155	126.60	52.80
W-2	151.80	52.80	155	126.60	52.80
W-1	137.40	52.80	155	126.60	52.80
E-9	144.90	42.30	54	91.80	42.30
E-8	135.00	42.30	54	91.80	42.30
E-7	115.80	42.30	54	91.80	42.30
E-6	106.20	25.20	54	55.20	25.20
E-5	102.60	25.20	54	55.20	25.20
E-4	90.30	25.20	54	55.20	25.20
E-3	80.10	25.20	54	55.20	25.20
E-2	70.80	25.20	54	55.20	25.20
E-1 Recruit	66.60	21.60	54	46.80	21.60

<sup>1</sup> October 1 1975 BAQ Without Dependents Rates

<sup>2</sup> Developed in cost section of this paper, See Table 8, page 39.

<sup>3</sup> OSD/OMB Military Housing Study Report (Draft), Vol. III, Oct. 31, 1975, page 153. The QPMC reallocation is the dollar extended total of the OSD/OMB estimate times numbers of officers and enlisted, and then prorated on the basis of adequacy standards of square footage on the same basis.

It is thus concluded that in the absence of appraisals, the objective compensation value for bachelor quarters other than those on board ship, or in the field, can be reasonably approximated by the compensation cost to the government shown in Table 10. Should government cost recovery be chosen as the basis for BAQ "forfeiture" or quarters rental rates, it would be essential to establish management controls on bachelor quarters analogous to those on family quarters.

B. Subjective Value of Quarters.

The subjective value is the value upon which the military members base their decisions relative to the appropriateness of any element of compensation. Therefore, it is an important element to be considered in any future change in the methods of compensating military personnel for quarters.

The subjective value a military member places on quarters is affected by many factors, such as disposable income, life style, family composition, military control exercised over occupants of on-base quarters, personal preferences as they pertain to the military community, convenience, and perceived significant attributes of one's domicile.

As was pointed out in the 1975 DOD Family Housing Preference Survey,<sup>1</sup> the role of social class identification in relation to housing choices and aspirations was explored in depth by a recent study of the Boston and Kansas City metropolitan areas (Birch, Atkinson, Clay,

<sup>1</sup> DOD Family Housing Preference Survey, Navy Personnel Research and Development Center, NPRDC TR 76-20, San Diego, California, November 75.



Coleman Friedan, Friedlander, Parsons, Rainwater and Teplite, 1973).

The authors found that housing preferences and goals were primarily a function of social class, as defined by distinct complexes of occupation, cultural values, income, and type and level of education. Schafer (1974) investigated the factors associated with propensity to occupy multi-family housing in large metropolitan areas (500,000 or more). He found that life cycle stage was the most meaningful variable, with income and location of workplace also showing some relationship. The decision to rent or buy was investigated for urban areas by Stroyk and Marshall (1973) in the development of the Urban Institute Model. They found that family type (analogous to Schafer's life cycle stage), race, and income were all related to the propensity to buy housing. A recent survey reported in conjunction with the OSD-OMB Housing Study indicates that the "subsidy" (only "forfeiting" the amount of their BAQ) to occupants of government family quarters is the primary influence for about 20 to 27 percent of the respondents who express a preference for government quarters.

Two previous surveys of married military personnel, also discussed in the Navy report, indicate favorability toward living in government quarters generally tended to increase as pay grade increases. Consistent with these pay grade differences, families who prefer military housing seem to hold

somewhat different values and priorities from those preferring civilian housing. Reasons such as safety, convenience, and association with other military families are often given for choosing military housing whereas greater privacy, avoidance of restrictions and military atmosphere, and greater neighborhood diversity are reasons frequently given for preferring civilian housing.

1. Subjective Value of BAQ. In considering the subjective value of BAQ, the actual cash amount of BAQ should be considered as the subjective value of BAQ for those individuals receiving the allowance.

2. Subjective Value of Family Housing. The only available information pertaining to military members' subjective value of government family housing is contained in the January 1975 DoD Family Housing Preference Survey. The survey asked members to estimate what it would cost to rent similar quarters in the local economy. The replies are thus a subjective estimate of cost and are not necessarily comparable to rents actually being paid as shown in Table 9 on page 46. The survey contained the following question for married personnel occupying military housing:

TABLE 11Family Housing Rental Survey Results

"About how much do you think it would cost to rent similar housing in the local civilian community. Include utilities and routine maintenance costs. Exclude telephone and major home improvements."

The results by pay grade follow:

<u>Pay Grade</u>	<u>Estimated Values</u>
<u>Officers</u>	
O-6	\$361
O-5	304
O-4	286
O-3	246
O-2	229
O-1	225
Weighted Average Officers	267
<u>Warrant Officers</u>	
W-4	Sample too small*
W-3	273
W-2	234
W-1	Sample too small*
Weighted Average Warrant Officers	240
<u>Enlisted</u>	
E-9	248
E-8	261
E-7	246
E-6	226
E-5	205
E-4	184
E-3	182
E-2	170
E-1	Sample too small*
Weighted Average Enlisted	217
Weighted Average All ranks	230

\* Individual data points although too few to reliably estimate grade average were included in the composite for the group average.

These subjective values are bracketed by the BAQ rates on the lower side and the government costs on the high side, at almost all pay grades.

(See Table 9, page 46 ) This suggests that the perceived value of government quarters exceeds the value the members place on the dollar substitute for quarters in-kind (BAQ), but less than the government's cost to provide such quarters. This also explains the preference of a significant proportion of service members to live on base, as shown in the following tables from the 1975 DoD Family Housing Preference Survey.

Table 12  
Occupancy and Preference for Each Housing Style

Style of Housing	Occupancy (%)*	Preference (%)	
		Military	Spouse
Single Family			
Government	10	31	35
Rented civilian	9	10	9
Own civilian	22	33	28
Total	41	74	72
Multiple Family			
Government	27	10	15
Rented civilian	19	5	6
Own civilian	1	3	1
Total	47	18	22
Mobile Home	11	5	5
Unknown	1	3	1
Total	100	100	100
Sample size (weighted)	22,263	22,263	22,147

\*Based on military respondents



Table 13  
Percentage of Respondents Preferring Each  
Housing Type by Paygrade Group

Type of Housing Preferred	Military (%)				Spouse (%)			
	Total	E-1-E-3	E-4-E-9	Officer	Total	E-1-E-3	E-4-E-9	Officer
Government	42	44	44	41	50	51	52	46
Rented civilian	15	29	17	5	15	31	15	5
Owned civilian	35	16	33	53	29	9	26	48
Mobile home	5	11	6	1	5	9	7	1
TOTAL	97*	100**	100**	99*	100**	100**	100**	100**
Sample Size (Weighted)	22,263	2,758	13,857	5,037	22,147	2,836	14,102	5,077

\*The remainder did not express any preference.

\*\*Excludes those who did not express any preference

The QRM C Staff recommends that the DOD Family Housing Survey values be adopted as the subjective value of government provided family quarters. Scaled values would be added for missing grades.

3. Subjective Value of Bachelor Quarters. There is no known survey data concerning the estimated rental value for bachelor quarters such as that displayed above for family quarters. The OSD-OMB Military Housing Study, however, contained the following points on attitudes of bachelors:<sup>1</sup>

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<sup>1</sup> The sample size was 900 and was not randomly selected.

- o Overall, about 72 percent of bachelor enlisted personnel polled indicated a preference for drawing BAQ and living in the civilian community.
- Junior bachelor personnel polled expressed a preference for living in the civilian community. Their chief complaint was a lack of privacy in their accommodations.
- Senior bachelor personnel polled, who frequently have the option to draw a BAQ and not live in government quarters and whose government quarters typically afford more privacy, are less desirous of living in the civilian community.

Due to the lack of any quantitative survey data for the subjective value of bachelor housing, the QRMCI Staff is unable to determine subjective values for bachelor quarters. It is therefore recommended that the government cost be used as a proxy for the missing data.

#### C. The Effectiveness of the Quarters Compensation.

The effectiveness of the quarters compensation can be estimated using the parameters of (a) cost effectiveness or (b) effectiveness of purpose.

Both methods are viewed from a management point of view. The former is concerned with the effectiveness of a specific compensation item or subsystem, whereas the latter considers the effect the compensation item has on the larger system goals.

1. Cost Effectiveness. The cost effectiveness of the quarters compensation can be evaluated by a simple output over input formula where output is the government's cost avoidance and the input is the DoD cost of providing the compensation.

a. Cost Effectiveness of BAQ. The compensation cost and value of the BAQ portion of the quarters compensation is clearly equal to the cash amount of the allowance received. It represents the cost to the government and the value to the recipient, making its effectiveness under the cost parameter unity.

b. Cost Effectiveness of QIK. Based on the data contained in Table 14, the cost effectiveness of bachelor and family quarters in-kind can be estimated for officers and enlisted personnel.

TABLE 14  
Cost and Value of Quarters

<u>Bachelor</u>	<u>Officer</u>	<u>Enlisted</u>
<u>Quarters in Kind</u> <sup>1</sup>		
Number	19,087	594,423
Government Costs	\$ 14.8M	\$ 176.5M
BAQ "Forfeited"	\$ 35.6M	\$ 574.5M
Fair Market Value <sup>2</sup>	\$ 35.5M	\$ 428.0M
<u>BAQ</u>		
Number	31,569	83,294
Government Costs	\$ 61.3M	\$ 93.5M
BAQ Received	\$ 61.3M	\$ 93.5M
Average Expenditures (BLS) <sup>3</sup>	\$ 35.8M	\$ 51.2M
<u>Family</u>		
<u>Quarters in Kind</u>		
Number	75,590	234,809
Government Costs	\$ 245.3M	\$ 691.9M
BAQ "Forfeited"	\$ 201.5M	\$ 448.2M
Subjective Value	\$ 239.7M	\$ 610.1M
<u>BAQ</u>		
Number	156,292	722,638
Government Costs	\$ 422.0M	\$1,283.4M
BAQ Received	\$ 422.0M	\$1,283.4M
Rental Costs	\$ 569.1M	\$1,688.8M
Average Expenditures (BLS) <sup>4</sup>	\$ 505.8M	\$1,270.4M

1 Excludes members aboard ship and in short tour areas.

2 Estimated from OSD-OMB Housing Study, Vol. I, Executive Summary, 31 Oct 75, p. 13.

3 BLS consumption budget data for single persons under 35 from USDL 75-190, April 9. Lower budget used for enlisted and intermediate budget used for officers.

4 Ibid, for family of four.



Bachelor QIK Cost Effectiveness

$$= \frac{\text{Output}}{\text{Input}}$$

$$= \frac{\text{Gov't Cost Avoidance}}{\text{Gov't Cost}}$$

$$\frac{\text{BAQ "Forfeiture"}}{\text{Gov't Cost}}$$

<u>Officer</u>	<u>Enlisted</u>
----------------	-----------------

=	$\frac{\$35.6 \text{ M}}{\$14.8 \text{ M}}$	$\frac{\$574.5 \text{ M}}{\$176.5 \text{ M}}$
---	---	---

=	2.41	=	3.25
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Family QIK Cost Effectiveness

$$= \frac{\text{Output}}{\text{Input}}$$

$$= \frac{\text{Gov't Cost Avoidance}}{\text{Gov't Cost}}$$

$$\frac{\text{BAQ Forfeiture}}{\text{Gov't Cost}}$$

<u>Officer</u>	<u>Enlisted</u>
----------------	-----------------

=	$\frac{\$201.5 \text{ M}}{\$245.3 \text{ M}}$	$\frac{\$448.2 \text{ M}}{\$691.9 \text{ M}}$
---	---	---

=	.82	=	.64
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These estimates show that the value the government receives by way of a cost avoidance is approximately three times the government cost incurred from bachelor quarters. The value of family quarters is approximately .6 of the cost incurred.

The reciprocal of these cost effectiveness figures portray the cost effectiveness of the members' compensation as viewed from their vantage point.

Bachelor

<u>Officers</u>	<u>Enlisted</u>
.41	.31

Family

<u>Officers</u>	<u>Enlisted</u>
1.22	1.56

These estimates show that the value received by bachelors living in

government quarters is less than half the amount of BAQ "forfeited," whereas the value received by married members living in government quarters exceed the BAQ "forfeited" by between 40-80 percent.

C. Effectiveness of Purpose. As is the case in any compensation system, the major goals of the military compensation system are to attract and retain qualified individuals in the numbers required to perform the mission. Comparing average rates of the fair market value of government quarters, BAQ received or "forfeited," and average family rentals show that on an annual basis: (1) the average military family residing in government family housing gains about \$1,002 in disposable income, whereas military families renting civilian housing lose about \$1,050 in disposable income. For the most part, bachelors in government quarters lose a part of their potential disposable income. Those on field duty and sea duty lose an even greater part of their potential disposable income.

TABLE 15

Comparison of Average Annual Rental Values and BAQ Rates<sup>1</sup>

	<u>Fair Market Value</u>	<u>BAQ</u>	<u>Difference</u>
Family Quarters	\$2,895	\$1,893	\$1,002
Family Offpost Rent	2,800	1,750	- 1,050
Bachelor Quarters			
Officers	\$1,860	\$1,378-2,916	+\$482 to - 1,056
Enlisted	\$720	\$800-1,736	- \$80 to - 1,016

<sup>1</sup> OSD-OMB Military Housing Study, Vol I, Executive Summary, Oct 31, 1975, p. 13

The average BAQ figures from Table 15 indicate that more senior members (higher average BAQ "forfeited") are in government family quarters than are renting in a civilian community.

It is reasonable to assume that any effect the quarters compensation would have on the retention would be limited to the earlier years of service, prior to the possible indifference resulting from a greater disposable income in the member's latter portion of his career. Previous studies of military personnel have shown that career-motivated individuals are more likely to prefer military housing than non career motivated (Dupuy, 1965. "Family Housing" 1966). This study also found that junior officers and junior enlisted personnel cited family housing as an important factor in their career decision. However, in a Navy survey asking respondents to choose the most important change that would make a Navy career attractive to them, "improve barracks and government family housing" was less important than changes in pay, allowances, leadership and personnel policies (Kaitter, et al., 1969). The DoD Family Housing Preference Survey found a slight positive correlation between the number of times a family lived in government housing and the career intention of the member; and a slight inverse correlation between "preference for civilian community" and career intention.

To further focus on the effectiveness of the quarters benefit as it pertains to government cost and government cost avoidance, the expected change in reenlistment of military personnel presently in their initial term

of service -- officers with under six years of service and enlisted with under four years of service -- can be analyzed. The methodology used will determine a benefit/cost ratio from a management point of view. The benefit is the cost avoidance resulting from increased reenlistment. The cost is the appropriated funds spent on quarters (in-kind and allowances).

$$\frac{\text{Benefit Ratio}}{\text{Cost}} = \frac{\text{Replacement cost} \times \text{percent change in reenlistment rate} \times \text{population}}{\text{Quarters cost by group}}$$

The percentage change in reenlistment rate ( $\Delta R$ ) is determined by multiplying the reenlistment rate (R) by the elasticity for reenlistment (er) and the percentage of quarters value to the total compensation ( $\Delta C$ ).

$$\Delta R = R \times er \times \Delta C$$

Where:

$$\Delta C = \frac{\text{Value of quarters compensation}}{\text{Total compensation}}$$

In this model, the value for those receiving BAQ is the actual cash received. The value for married personnel in government quarters is equal to the subjective (perceived) value of family government housing from a survey, and the value bachelors in bachelor quarters is the government cost of those quarters since no perceived value was available. The bachelors in quarters exclude those on sea duty, in the field and those on unaccompanied overseas tours.

Working estimates of total military compensation have been made by the QRM C Staff. (Details for this and the following numbers are contained in TAB G). The total compensation for single members in government quarters was adjusted downward by the difference between the BAQ "forfeited" and the



government cost to reflect the loss of potential compensation. In the same manner, the total compensation for married members in government quarters was adjusted upward by the difference between the government cost and the BAQ "forfeited" to reflect the cost avoidance advantage provided by family government quarters.

This methodology has identified certain parameters that will be used in the model. The matrix shown below lists the parameters and assigns values that were obtained from DoD sources as shown in TAB G.

<u>Parameters</u>	<u>First Term</u>	
	<u>Officers</u>	<u>Enlisted</u>
(P\$) #Single receiving BAQ	2,310	13,427
(P\$m) #Married receiving BAQ	8,700	85,340
(Pq) #Single receiving QIK Ashore	1,046	88,462
(Pqm) #Married receiving QIK	4,437	17,127
(P) Total	16,493	204,356
(Cr) Replacement Costs	\$56,200	\$24,000
(V\$) Single BAQ Value (Actual payments)	4.6M	14.8M
(V\$m) Married BAQ Value (Actual payments)	22.1M	141.2M
(Vq) Single QIK Value (Government cost)	.9M	27.0M
(Vqm) Married QIK Value (perceived)	12.9M	40.2M
(V) Total	40.5M	223.2M
(er) Elasticity of Reenlistment	1	2
(R) Reenlistment/continuation rate	.43	.37
(TC\$) Total Comp. for single receiving BAQ	56.4M	160.1M
(TC\$m) Total Comp. for married receiving BAQ	226.3M	1,089.4M
(TCq) Total Comp. for single receiving QIK	23.3M	946.0M
(TCqm) Total Comp. for married receiving QIK	115.3M	246.3M
(TC) Total	\$421.3M	\$2,441.80M

	<u>Parameters</u>	<u>First Term</u>	
		<u>Officers</u>	<u>Enlisted</u>
(C\$)	Single BAQ Costs	4.6M	14.8M
(C\$m)	Married BAQ Costs	22.1M	141.2M
(Cq)	Single QIK Costs	.9M	27.0M
(Cqm)	Married QIK Costs	12.5M	46.2M
(C)	Total	<u>\$40.1M</u>	<u>\$229.2M</u>

The total methodology expressed as a model is:

$$\frac{\text{Benefit}}{\text{Cost}} = \frac{Cr \left[ \left( \frac{V}{TC} \right) \times er \times R \right] P}{C}$$

Using this model, the benefit/cost ratio for first term members are:

TABLE 16  
BENEFIT/COST RATIO

	<u>Officer</u>	<u>Enlisted</u>	<u>Average Ratio</u>	<u>Overall Average Ratio</u>
A. Bachelor				1.47
Receiving BAQ				
Cost	\$4.6M	\$14.8M	-	-
Ratio	.96	1.48	1.36	-
Receiving QIK				
Cost	.9M	\$27.0M	-	-
Ratio	1.05	1.57	1.55	-
B. Family				1.27
Receiving BAQ				
Cost	\$22.1	\$141.2M	-	-
Ratio	1.02	1.38	1.33	-
Receiving QIK				
Cost	\$12.5M	\$46.2M	-	-
Ratio	1.02	1.13	1.11	-
C. Total				
Receiving BAQ Ratio	1.01	1.39	-	-
Receiving QIK Ratio	1.02	1.29	-	-
Average Ratio	1.01	1.36	-	-
D. Overall Average Ratio				1.31



These ratios take into consideration the members' perceived value of this allowance, the financial advantage of living in government family housing and the financial disadvantage of living in bachelor government housing. They further estimate the cost avoidance resulting from decreased personnel replacement costs brought about by the change in reenlistment rates associated with the value of the quarters allowance and in-kind housing, based on the elasticity principle and compares this cost avoidance with the government's cost to provide this benefit.

It can be estimated from these ratios that the effectiveness of the DoD dollar currently spent on quarters both in-kind and in cash is .99 as it pertains to the cost avoidance from increased reenlistment due to the quarters benefit, for first term personnel. The ratios also show that given the choice, the most effective manner of providing the quarters benefit for bachelors is through providing QIK, whereas the most effective manner for families is BAQ. This assumes no military requirement to have them on base. Also, DoD is spending their money more effectively on enlisted than on officers.

A second approach to the evaluation of effectiveness is to assess the attitudes and preferences of military personnel and their spouses concerning housing and BAQ. A study covering these areas was conducted by the Navy Personnel Research and Development Center in November 1975.<sup>1</sup> The study indicated that various relationships of responses "... suggests that living in desirable government quarters contributes to career motivation."<sup>2</sup> The study also indicated more work

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<sup>1</sup> Navy Personnel Research and Development Center, San Diego, California 92152, Report NPRDC TR 76-20, November 1975, Department of Defense Family Housing Preference Survey by Susan S. Stumpt and William F. Keeckhaefer, p. 40-47.

<sup>2</sup> Ibid, p. 44.

was required to confirm the inferences drawn from the survey findings. If the study is accurate, then the provisions of "desirable government quarters" and renting them at a subsidized rate may be a very cost effective approach.

## PART II

### BAQ, Rates and Equity Issues

#### I. Introduction:

The question of the adequacy of the current quarters allowances to defray housing costs has become of increasing concern to military members as the cost of housing has grown further away from BAQ rates. Since the allowance is called a basic allowance for quarters, nearly all members expect the allowance to adequately cover all of their housing costs. The increase in utility costs associated with housing, the inflated value of housing, and high interest rates have all tended to provide service members who occupy government married quarters and to a lesser extent some bachelor quarters an increased economic advantage over the members who do not reside in government quarters and instead receive a basic allowance for quarters. Utility costs alone have increased 34 percent from October 1973 to October 1975.<sup>1</sup> Government utility costs for military family housing worldwide have increased 50 percent from 1970 to 1974.<sup>2</sup> Currently, 47 percent of all military members receive a cash BAQ in lieu of QIK. This group includes 66 percent of all officers and 44 percent of all enlisted members.

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<sup>1</sup> Fuels and Utilities Component of CPI, Series C-8, BLS

<sup>2</sup> OSD-OMB Military Housing Study (Draft), October 31, 1975, Vol II, p. 223

This part of the paper will discuss what BAQ rates should be, how they should be adjusted, and equity issues in the current BAQ rates such as:

- o Married vs. single rates
- o Quarters charges for members at sea or in the field
- o Quarters charges for members serving overseas where dependents are not authorized
- o Rates for members married to each other
- o BAQ rates for terminal leave payments

## II. What Should the BAQ Rate Be?

The history of BAQ rates and rate setting methods indicates that a variety of policies and approaches have prevailed over the years. With the enactment of Public Law 67-235 in 1922, a major change in the method of paying for quarters took place. This law substituted a rental allowance for the previous commutation system. The rental allowance per room was to be set by the President. Officer and enlisted personnel were both entitled to an allowance although the rates varied by grade. Officer



allowances depended on rank and dependency status while all enlisted ranks received the same monthly rate. The rates were approximately equal to the then current civilian costs for housing, which had been determined by a special study that supported the legislation. Changes were made in 1942 and in 1949 which changed both the BAQ amounts and the groups of individuals entitled to these amounts.

Adjustments took place over the following years which further changed the groups of individuals entitled to BAQ, and provided some small increases in the BAQ rates. In 1952, the BAQ was raised 14 percent by Public Law 82-346 to reflect changes in cost of living since the 1949 adjustment. Public Law 90-207, enacted on 16 December 1967, increased allowances for enlisted personnel in pay grades E-1 through E-4 (four years or less service) and modified the military pay adjustment mechanism. This major change in pay adjustment methodology resulted in military compensation being adjusted each time the Federal Civil Service General Schedule pay was adjusted. It was also the first time that Congress took an action under which the BAQ was not related, in some way, to civilian housing costs. The total monetary adjustment, although calculated on basic pay plus BAQ and BAS and the tax advantage, was placed in basic pay. Thus, the BAQ itself was not changed in 1967 nor in the next three pay raises (1968, 1969, and 1970).

In 1971, Public Law 92-129 set the BAQ rates to equal 85 percent of the Federal Housing Authority (FHA) standard housing costs for comparable income groups. This action reconfirmed that the underlying purpose of the allowance was to approximate housing expense in the private market. The 85 percent rate was a compromise between the House Bill which would have established the rate at 100 percent of the FHA standard and the Senate Bill which did not recommend an increase in the BAQ rates.<sup>1</sup> Although an argument can be made that the FHA is a poor measure of private sector cost in that it only covers purchased housing and has a fairly low ceiling on the allowable cost, it does represent a readily available and widely used method of estimating private sector cost. With the exception of this single adjustment, the provisions of the 1967 law continued in effect, and pay raises granted in 1972 and 1973, based in part on BAQ as described, were incorporated into basic pay with no change in the BAQ rate.

The pay adjustment mechanism was modified by enactment of Public Law 93 -419 on 19 September 1974. As a result of this legislation and beginning with the 1 October 1974 adjustment, BAQ, subsistence, and basic pay rates are adjusted each time the General Schedule Civil Service pay is adjusted and by the average of the percentage increases in the General Schedule. The changes and rates in effect during each period are summarized at Tab B. The current BAQ rates are included at Tab C.

The impact of the two pay increase laws leaves some doubt as to the intent of Congress in establishing the BAQ rates and the adequacy of the current

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<sup>1</sup> House of Representatives Report #92-433, July 30, 1971, Extension and Revision of the Draft Act and Related Laws, p. 23

rates to offset housing costs. The BAQ adjustment made in 1971 but still within the context of the RMC adjustment formulas, suggests that these formulas were not intended to sever the relationship between BAQ and the cost of quarters in the private sector. Recognizing the uncertainty, several alternative approaches may be taken to evaluate what the proper BAQ rates should be.

The first alternative is to accept the current rates as providing the level of housing related compensation deemed appropriate by the Congress. This alternative is based on an assumption that since the Congress accepted the rates in effect in 1974 as the base for future adjustments; the BAQ rate was at a level that the Congress considered appropriate.

A second alternative reaches the same conclusion, but by a longer chain of logic. It assumes that the adjustment made in 1971, which brought the BAQ rate to an amount equal to 85 percent of the FHA standard, was considered an appropriate level. If raises that occurred subsequent to November 1971 had been applied in accordance with the 1974 law, instead of being placed into basic pay, the BAQ rate would have been increased by 22.6 percent including the 1974 raise or 28.4 percent including the 1975 raise (see TAB H for detail). During the period from 1971 to 1974, the housing cost index increased from 125.5 to 154.9, a 23.4 percent increase.<sup>1</sup> Thus, if a different procedure had been followed, the BAQ rate in 1974 would have been at approximately the same level relative to the FHA standard as the relationship established in 1971. The only difference being that some of the BAQ dollars are now included in basic pay.

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<sup>1</sup> Consumer Price Index (CPI) Detailed Report BS, Bureau of Labor for September 1974 (January 1975) and September 1971 (December 1971)



A persuasive counter argument has been made to this second alternative. This argument is based on the premise that all pay raises placed in basic pay were intended as basic pay adjustments and should not be considered as an offset to BAQ. This line of reasoning concludes that since there were only two increases (the 5.52 percent adjustment in 1974 and the 5.0 percent in 1975) to BAQ since the major adjustment in 1971, there currently is a requirement for a significant BAQ rate adjustment to bring BAQ into line with current costs. It is reinforced by the fact that the Senate Appropriations Committee in the 1976 budget hearings asked that the DoD report on the adequacy of the allowances to meet the cost of items they are intended to procure.<sup>1</sup>

A third alternative is to have the BAQ rate bear a relationship to the cost of obtaining other than government quarters. The ability of a member to obtain quarters on the installation is normally a matter of fortuitous circumstances, with the exception of lower grade officer and enlisted members without dependents. Quarters on the installation, except those reserved for essential personnel such as unit commanders or doctors, so-called "billet quarters", are normally assigned on a "first-come first-served" basis. Therefore, time of arrival at the base is a major deciding factor in obtaining quarters. There are not enough government quarters, particularly family quarters, to accommodate all currently eligible members. Nor would there be enough for all members with dependents if the entitlement

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<sup>1</sup> Senate Appropriations Committee Report No. 93-1104, U. S. Government Printing Office, 1975, p. 32.



were extended to include the members in grades E-1 through E-4 (with less than four years' service) who are not presently eligible for family quarters. Currently, approximately 47 percent of the total force must obtain non-government quarters.

The cost of quarters off the installation, at all installations in the contiguous 48 states, exceeds BAQ on the average, by approximately 47 percent.<sup>1</sup> The result is an additional expense to the service members who must obtain other than government quarters. The additional expense varies depending on the member's location. For the member stationed overseas, including Alaska and Hawaii, the additional expense is minimized by a station housing allowance (HA). This HA makes up the difference between the weighted average of the BAQ received by the members and the weighted average of the actual rental costs being experienced by the members stationed in the area. There is no such allowance in the United States. However, a small fraction of the force has special arrangements made for it in exceptional circumstances. For example, for recruiters stationed in extremely high cost areas, such as New York City, the government leases quarters and provides them to the member. In these cases, the service member forfeits BAQ just as he would if he lived in government quarters regardless of the government cost. For all other members who are not provided government quarters and thus must obtain private quarters, There is an additional expense which must be covered out of basic pay or other income when the

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<sup>1</sup> Tabulation of Family Housing Survey, Department of the Navy (DD-1377). See also the QRM C Staff paper on variable housing allowance.

price they must pay for rent and utilities exceeds the BAQ. The Navy Facilities Command survey indicates that the weighted average of rent and utility costs near all installations in the contiguous United States exceed the weighted average BAQ for members who must obtain those type quarters.

This third alternative minimizes the impact on the member of lack of on post quarters by setting the BAQ rate such that it covered the rental cost of the private sector quarters. Based on a tabulation of the referenced survey this alternative would cost approximately 47 percent, or \$600 million more than present BAQ. Rental rather than purchased housing cost may be viewed as the more appropriate measure of cost, since those in government quarters "rent" rather than buy. It also would avoid the need to deal with the effect of tax advantage and potential appreciation of the investment in housing. In this regard, the relative inability of military personnel to participate in the housing market is described in the QRMC Staff Research Paper on the Military Factor.<sup>1</sup> Methods and costs of implementing this policy are discussed in a later section of this paper.

A fourth alternative is to set the BAQ rate equal to the government cost of providing quarters for the member or the member and his dependents. This alternative would sever any relationship that BAQ bears to the cost of obtaining housing in the private sector. It also eliminates the possibility of having the BAQ rate driven up by the members obtaining more expensive

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<sup>1</sup> A persuasive case can be made for considering purchase as well as rental costs because the lack of suitable rentals at some installations leaves some members the options of purchase or an unaccompanied tour. This issue will be addressed in some detail in a forthcoming QRMC Staff Research Paper on Variable Housing Allowances.

housing might be necessary.<sup>1</sup> It allows the government to recover its cost of providing quarters while recognizing the difference between members with and without dependents. The cost of this alternative would be approximately 50 percent, or \$860 million more than present BAQ expenditures, assuming no change in on-post residency.

The variety of past BAQ approaches and the legislative history does not provide a clear-cut indication of the appropriate rate. The issue revolves around whether the BAQ should completely cover the cost of obtaining quarters equivalent in size and amenities, to include utilities less telephone, in off-post quarters.

The alternatives are:

A. Make no change in the current rates except to continue the existing adjustment mechanism which is based on Federal General Schedule adjustments. There would be no cost change as a result of this.

B. Set BAQ at 85 percent of the FHA standard which had been set in 1971 for each pay grade. This alternative would cost approximately 24 percent or \$425 million more than present BAQ expenditures, assuming no change in on-post residency.

C. Set BAQ, on the average for each pay grade, to fully cover off-post housing costs. This alternative would cost approximately 47 percent, or \$600 million more, than present BAQ expenditures if there were no change in on-post residency.

<sup>1</sup> In this regard however, it should be noted that the administration of the overseas station housing allowance has produced no identifiable tendency to have HA rates driven up by member rental behavior (Telephone interview, DOD Per Diem Travel and Transportation Allowance Committee 25 July 1976.



D. Set BAQ for each pay grade, on the average, to meet the full DoD cost of providing QIK. This alternative would cost approximately 50 percent or \$860 million more than present BAQ expenditures, assuming no change in on-post residency.

For planning purposes, it is recommended that alternative C, off-post housing cost coverage, be adopted as the appropriate BAQ rate. Methods of funding the cost can then be decided during the review of the compensation mix and compensation comparison issue.

### III. Should the BAQ Rates Vary by Grade?

The history of BAQ shows that the rate has generally varied by grade, with some exceptions for general officers and certain enlisted personnel. Public Law 67-235, enacted on 10 June 1922, established a system that provided a flat rate for enlisted personnel and a rate that varied by rank and dependency status for officers to be paid when QIK was not provided. In 1942, Public Law 77-607 extended the rank and dependency differential to include the top three enlisted grades. In 1949, Public Law 81-351 included all enlisted except E-4 (under seven years' service) and lower in the rank/dependency system. In 1950, Public Law 81-771 generally extended the rank/dependency system to all personnel. Various other changes were made in 1958, 1962, 1967, and 1971 to cover new grades and adjust rates upward. A detailed tabulation of the BAQ rates, by rank and dependency status, is attached at Tab B. Current rates are shown in Tab C.



There are two exceptions to the rank/dependency status pattern. For officers 0-7 through 0-10 and enlisted grades E-1 through E-3, BAQ rates are based on dependency status only. All general officers receive \$255.30 per month without dependents and \$319.20 with dependents. E-1 to E-3, inclusive, with dependents receive the same BAQ rate of \$116.10. There is a difference in the without dependents rate for E-1 through E-3 which does vary by rank. The failure to provide differences in rates for these grades appears neither equitable for these members in comparison to other member groups, nor consistent with the scaling of BAQ to rank.

The appropriateness of a BAQ rate which increases with grade has been recognized by various compensation studies including the Hook Commission in 1948.<sup>1</sup> The necessary differences in rates have been attributed to the need to recognize the difference in the standard living at different income levels.

Throughout western culture, it is generally accepted that as income increases, the standard of living as displayed in the size and/or quality of housing also increases. An argument can also be made that to be consistent with societal norms<sup>2</sup> a member's living standard should increase with grade since increases in grade reflect increases in responsibility and status. This is reflected in salary and wage scales in the private sector.

<sup>1</sup> Career Compensation for the Uniformed Forces, a report and recommendation for the Secretary of Defense by the Advisory Commission on Service Pay, December 1948.

<sup>2</sup> See the discussion of the subjective value of quarters on pp. 46-48.

The correlation between salary/wage levels and housing value suggest that under a pay and allowance system the quality of housing should increase with rank, and the BAQ should increase in a similar manner.

It can be concluded from the preceding discussion that increases in the BAQ, concurrent with rank, have generally been accepted as proper in various studies and in legislation and would match the expected occurrences in the private sector.

Therefore, it is recommended that

A. Under a pay and allowance system:

1. The BAQ rate continue to increase with increases in rank.
2. The BAO rates for general officers and E-1 through E-3 (with dependent) rates should be adjusted to reflect differences in grade.

B. Under a salary system, the differential in rank be recognized and included in the salary system.

#### IV. Alternative Methods of Adjusting BAQ Rates.

Changes to the current system of paying the basic allowance for quarters require decisions on how adjustments to the rates should be made. The adjustment mechanism will be different under a pay and allowance system and a salary system.

A decision under a pay and allowance system, to retain the present system of BAQ payments would impose no additional cost upon the government and would retain the quarters benefit to service members unchanged. Alternatives based on the concept that the BAQ rate should bear a direct relationship to the cost of obtaining housing off the installation will increase the cost to the government and increase the compensation value to the service member. These alternatives would include setting the BAQ rate at some percentage up to and including 100 percent of the average rental, utility, and furniture expenses paid by each grade as determined by surveys, such as the internal survey conducted by the Naval Facilities Command.<sup>1</sup> Based on the estimate that the current rental and utility costs of comparable housing in the private sector exceed the BAQ, the requirement to increase the current BAQ could amount to a 47 percent or greater increase in BAQ and cost approximately \$600 million.

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<sup>1</sup> Dept. of the Navy, Naval Material Command, DD-1377, Tabulation of Family Housing Survey, January 31, 1974.

There are three methods of funding an increase in BAQ. These are:

- (a) a one-time adjustment of the rates to bring them to the desired rates;
- (b) phasing the increase over a period of time by means of incremental increases or by placing a disproportionate share of future pay adjustments entirely into BAQ until "parity" is attained; or (c) by evaluating the total package of current base pay and allowances in comparison to other sectors of the economy and redistributing the funds between the three elements of basic pay and the quarters and subsistence allowances to the extent that adjustments are required.

Under a salary system, there are essentially three alternatives for attaining parity with housing costs. These are: (a) convert the existing BAQ allowances to a salary using the existing rates, (b) adjust the BAQ rates by one of the means discussed above and then convert into a salary; or (c) after making comparisons to other sectors of the government and/or the private economy for equivalent work, set a salary for each grade without consideration of what proportion of the conversion is related to what quarters or subsistence allowances "should have been."

It is recommended that:

- a. Under a pay and allowance system, total funds in the Military Equivalent Salary established for each grade based on the adopted pay standard be distributed among the elements of the MES to appropriately set the two allowances.



b. Under a salary system, disregard the BAQ as a concept and set a salary for each grade based on the pay standard selected.

V. Equity Issues in Current BAQ Policies.

A. Difference in the BAQ Rates for Members With and Without Dependents.

Currently and historically, the BAQ entitlement has been based on dependency status as well as grade. The member with dependents receives a higher rate. The current law, 37 U.S.C. 403, entitles a member to a basic allowance for quarters, but not to the quarters. Earlier studies, such as the Hook Commission in 1948, indicated that the government has an obligation to provide adequate quarters to the service member.<sup>1</sup> In order to be adequate, quarters had to be adequate for both the member and his dependents. Since adequate accommodations for a single member without dependents do not necessarily need to be as large as for a member with dependents and since smaller quarters cost less, the BAQ rate for a single member normally would be lower than the rate for the member with dependents.

The difference in the BAQ rates for member with and without dependents became more pronounced after 1948. Although prior to that time,

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<sup>1</sup> Career Compensation for the Uniformed Forces, a report and recommendation for the Secretary of Defense by the Advisory Commission on Service Pay, December 1948, p. 12.

officers with dependents received a greater BAQ allowance than officers without dependents, enlisted personnel regardless of grade or dependency status received the same rate. In 1948, the Hook Commission recommended dispensing with the "...practice of providing an identical allowance for quarters to all enlisted personnel, irrespective of family status."<sup>1</sup> The Act of 12 October 1949, Public Law 81-351, implemented this recommendation and placed enlisted members on the same basis as officers.

Service members with dependents currently receive a higher BAQ rate than those without dependents. The equity issue is whether the rates should be equal.

The current practice of paying a higher BAQ rate to the member with dependents was first established for officers with the enactment of the 1922 Pay Act (P.L. 67-235). The Congressional hearings for the act established that an officer was entitled to some extra compensation to enable him to care for his family because the conditions under which the officer lived were entirely different from those existing in the civil sector.<sup>2</sup> Although this portion of the 1922 Act only applied to officers, the same reasoning was used by Congress in establishing quarters allowances for enlisted personnel in 1940.<sup>3</sup> Thus, the practice of paying members having dependents a higher

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<sup>1</sup> Ibid. p. 13.

<sup>2</sup> Career Compensation for the Armed Forces, Appendix, December 1948, p. 14.

<sup>3</sup> Public Law 76-872, Chapter 880, October 17, 1940.

BAQ than those members not having dependents was established for both officer and enlisted members.

The payment of an increased allowance to service members with dependents recognizes the increased expenses the service member is likely to incur due to having dependents. However, if RMC is treated as pay for service rendered, the differential allowance violates the principle of equal pay for equal work. Thus, members in the same pay grade performing the same work at the same place receive different amounts of pay as a result of their dependency status. For example:

TABLE 17

Comparison of Monthly Pay for E-5 Under 6 Years' Service

<u>Pay Element</u>	<u>With Dependents<sup>1</sup></u>	<u>Without Dependents<sup>1</sup></u>	<u>Without Dependents Occupying QIK<sup>2</sup></u>
Basic Pay	\$573.90	\$573.90	\$573.90
Basic Allowance for Quarters	153.60	102.60	24.30
Basic Allowance for Subsistence	75.90	75.90	75.90
Total	<u>\$803.40</u>	<u>\$752.40</u>	<u>\$674.10</u>

The member with dependents receives \$51 more cash pay per month than the member without dependents when both are receiving

<sup>1</sup> October 1975 Pay Rates

<sup>2</sup> QIK values were developed in Part I, Section VII, p. 45



cash allowances even though both are the same grade and are performing the same level of work. If the member without dependents is occupying QIK, the differential is even more significant, amounting to the equivalent of approximately \$129.30. There are alternatives which could be considered if the pay and allowances system were to be changed to treat RMC, rather than basic pay, as the equal pay for equal work element.

One alternative is to set a single rate of BAQ for each grade. Under these conditions, all members of the same grade doing the same work would receive the same BAQ regardless of dependency status. A decision would also be required as to the rate to be adopted. Three rate bases exist: the current rate for service members with dependents, the current rate for members without dependents, or a third rate which is independent of existing rates, and presumably between these bounds. The adequacy of the rates to offset the cost of quarters is a separate aspect of the issue and was previously described.

This force structure<sup>1</sup> can be broken down into four subgroupings for analysis of the rate bases:

<u>Personnel Receiving</u>	<u>Dependents</u>		<u>Total</u>
	<u>With</u>	<u>Without</u>	
BAQ	878,930	114,863	993,793
QIK	<u>310,399</u>	<u>801,328</u>	<u>1,111,727</u>
Total	<u><u>1,189,329</u></u>	<u><u>916,191</u></u>	<u><u>2,105,520</u></u>

<sup>1</sup> The 76-2 Force Structure from the President's Budget



The first base paying BAQ at the with dependent rate, would affect the smallest number of personnel (114,863) and raise the amount of BAQ paid. It would cost approximately \$62 million, assuming tha the number occupying government quarters does not change (detail in Tab I).

The second base paying BAQ at the without dependents rate, would affect approximately eight times the number of personnel affected by the previous base and reduce the amount of BAQ paid. The estimated cost savings to the government would be \$514 million (detail in Tab J).

The third base would be to set a standard rate independent of the existing rates. The impact on government costs would be determined by the rate established. It could be set in such a way that total BAQ costs would be the same as they are currently. It could also be set to approximate the average cost of obtaining housing and utilities for off-installation quarters or to cover DoD costs of providing housing. Based on available data, as previously discussed, a rate based on the cost of housing married members with dependents would exceed the current BAQ rate at all grades.

It is recommended that changes in rates for members with and without dependents be considered during review of the compensation mix issue.

B. Quarters Charges for Members at Sea and in the Field.

Sea duty involves periods of separation both at sea and in homeport. It imposes extremely limited personal mobility, living and working under cramped and confined conditions, comparatively intense fatigue from greatly extended working hours and exposure to the elements without the stability or safety of land. Sea duty involves regular and repetitive operations involving from 25 to 60 percent of the time at sea in all weather and in all climates. These operations are training operations to maintain combat readiness, operations to maintain forces at strategically and tactically required locations, and fleet operations required to perform naval functional missions.

There are additional elements: austere working and living spaces, constant duty status, near total lack of privacy, inability to escape the work environment, even when "off duty" compounded by the over-riding effects on the human of the ocean environment over time, which place sea duty in a category by itself.

Military personnel also serve in the field to conduct operations for training and for combat. They must be there 24 hours a day and are subject to call to duty throughout the period. They occupy field quarters and subsist on field rations. This duty is common to military service, but there are few comparable situations in the non-military

sector. When such conditions exist in the U.S. economy, employees normally receive exceptional compensation. For example, Merchant Mariners are not charged for quarters provided on board ship, the quarters being provided as part of the working environment.

Members without dependents who are assigned to sea duty are quartered in ships, and are not provided either housing or BAQ. When members without dependents are ordered on extended field duty they are likewise quartered on the job.<sup>1</sup> This is widely viewed to be inequitable since whatever degree of shelter is provided, it does not meet either military quarters standards or the normal societal standards. Members with dependents are authorized quarters or BAQ based on the availability and usage of quarters ashore; the type of duty assignment, sea or shore, field or garrison, is not a factor.<sup>2</sup>

It is concluded that none of the military members should be charged for shelter while on sea duty or under carefully defined extended field duty situations. The United Kingdom, which has established a military salary system, charges rent for government quarters. However, quarters are provided without charge for members on sea duty or on

<sup>1</sup> See 10 U.S.C. 403C at Tab A. Duty for a period of less than three months is not considered to be sea or field duty.

<sup>2</sup> When members with dependents on field duty must procure quarters at their own expense, they are authorized the family separation allowance, FSA-I, which is set equal to BAQ at the without dependents rate.



field duty under carefully specified conditions. The equity aspect of quarters on sea and field duty are thus eliminated.

C. Quarters Charge for Members Serving in Overseas Locations Where Dependents Are Not Authorized.

Military personnel, in carrying out national policy, are often required to serve at locations outside of the continental United States (CONUS). These locations generally fall into two categories: (1) those where dependents are authorized, and (2) those where they are not authorized.

In the first category, the housing situation for all personnel, while similar to that found in CONUS, often has some significant differences. A station housing allowance makes up the difference between the weighted average of the BAQ received by the members and the weighted average of actual rental costs paid by the members for off-installation housing. Therefore, members, on the average, pay essentially the same amount for housing whether they occupy government quarters or quarters on the local economy.

In areas where dependents are not authorized, so-called "short-tour" areas,<sup>1</sup> all personnel are generally provided government accommodations. When quarters are not available, the Family Separation Allowance Type I, which is equal to BAQ at the without dependents rate, is paid to members with dependents. Members without dependents do not receive BAQ while occupying government quarters in short tour areas. Members with dependents continue to receive a BAQ at the with dependents

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<sup>1</sup> Locations are listed in Tab M.



rate, if their dependents are not occupying government quarters at some other location.<sup>1</sup> A rationale for this policy is that a member with dependents, while on duty at a remote location, is required to maintain a residence for his family, whereas the member without dependents does not need to provide for a separate residence. The effect of this policy is that some members "forfeit" their BAQ while others, on the same duty receive the same quarters without "charge". If RMC rather than basic pay is regarded as the equal pay for equal work element, then the member with dependents is given preferentially high pay.

There are two alternatives in addition to the current system. One would be to treat areas where dependents are not authorized in the same manner as sea or field duty and apply the same rules as are applied to sea or field duty. The other would be to treat short-tour areas as "bachelor duty".

The "field duty" approach would assign no compensation value to the quarters. Members who currently have the value of the quarters

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<sup>1</sup> This is the case in both CONUS and in overseas locations where dependents are authorized. If a member with dependents is not accompanied by the dependents and if the dependents do not reside in government quarters at some other location, the member continues to be entitled to BAQ at the with dependents rate even though he himself is occupying government quarters. However, unlike overseas short-tour areas, the member is not entitled to FSA Type I when government quarters are not available.

included in their RMC would no longer do so. This would decrease RMC value by the value of the quarters provided to approximately 27,000 members without dependents who are stationed in these short tour areas, or about \$8 million. Since RMC is only a "bookkeeping" number there would be no impact on the DoD budget or government cost except to the degree that RMC was set to some external standard.

Members with dependents stationed in these short tour areas receive a FSA Type II in addition to the BAQ. This FSA is a reimbursement intended to defray the costs of miscellaneous work, such as minor repairs, which the member would normally perform at home but which the family must pay for in the member's absence. If the member without dependents no longer has a value assigned to his quarters for RMC computation purposes, thus reinforcing the concept of equal pay for substantially equal work, some might argue that the provision of an additional or differential allowance for members with dependents is "inequitable".

Under the "bachelor duty" alternative, all members assigned to duty in short-tour areas, both those with and without dependents, would be paid BAQ, except for members whose dependents are occupying government quarters elsewhere. Each member would be "charged" an equal amount, either the current without dependent BAQ rate, or a "fair market" rental for the quarters provided. There would be an increase in cost for the members with dependents who presently pay no "charge"

when assigned quarters under these conditions. Since there are a larger number of members with dependents (and thus authorized BAQ) than without dependents in these remote tour areas, the cost to the government, assuming no other changes, would decrease due to the increased collections. However, if the current differential BAQ rates are retained, then the member without dependents would still be receiving less total compensation than the member with dependents. Further, the member with dependents assigned a "bachelor duty" tour has then been obliged by military orders to obtain two sets of quarters and bear the expense of both. This approach would appear to require FSA Type I for such members whether in government or private quarters in the "bachelor duty" assignment to avoid a compounded inequity.

D. BAQ Included in Terminal Leave Payments.

Until passage of P. L. 94-381 on 14 July 1976, BAQ had been included in terminal leave payments. Officers were paid for accrued annual leave at the time of separation, from active duty, except in extenuating circumstances.<sup>1</sup> The accrued leave payment included both BAQ and BAS at the rate applicable to the officer's grade and dependency status at the time of discharge. Enlisted personnel were also paid for accrued leave at the time of discharge if the member so elected,

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<sup>1</sup>Section 501 through 504, 37 U.S.C., Table 4-4-5, DoD Pay and Allowances Entitlements Manual, p. 403.

unless he or she was accepting an appointment as a commissioned or warrant officer or when he or she elected to carry over the accrued leave to a new enlistment. The accrued leave payment of enlisted personnel, however, did not include the applicable BAQ and BAS rates but rather a flat 70 cents a day for subsistence and a flat \$1.25 per day for quarters. Further, the quarters payment was only for members in pay grades E-5 through E-9 with dependents. Enlisted members in pay grades E-1 through E-4 were not entitled to payment for quarters for accrued leave. Payment to both officers and enlisted personnel could not be made for leave in excess of 60 days.<sup>1</sup>

**TABLE 18**

Comparative Rates of Quarters Payment for Accrued Leave

<u>Grade</u>	<u>Flat Rate</u>	<u>Monthly BAQ Rate</u>	
		<u>Without Dependents</u>	<u>With Dependents</u>
E-1	\$ 0	\$ 66.60	\$116.10
E-2	0	70.80	116.10
E-3	0	80.10	116.10
E-4	0	90.30	134.40
E-5	37.50	102.60	153.60
E-6	37.50	106.20	166.20
E-7	37.50	115.80	178.80
E-8	37.50	135.00	190.80
E-9	37.50	144.90	204.00

Enlisted personnel below E-5 or of any grade without dependents appeared to be treated inequitably when being paid quarters allowance

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<sup>1</sup>Section 501 through 504, 37 U.S.C.



for accrued leave. This inequity was especially prevalent for enlisted personnel who had completed only one enlistment. For those in grade E-5 and above, the payment also appeared inequitable in that it was different from the rate of BAQ to which they were entitled and would have received had they used their earned leave.

An additional related equity issue had to do with the amount of unused leave for which reimbursement may be received. Enlisted members could receive a cash payment in lieu of up to 60 days accrued leave at the end of each enlistment period (or upon an extension of an enlistment period if the accrued leave was not carried forward to the new enlistment period). Theoretically, an enlisted person could have "cashed in" 60 days of leave at least four times during a 20-year career. Therefore, the enlisted member who had dependents and was in pay grade E-5 or higher at the end of each enlistment could have been paid a quarters allowance for at least 240 days of accrued leave, or \$300 during a career of 20 years. An enlisted member without dependents would not have received any such allowance for the 240 days accrued leave during a 20-year career, though he would have received the other elements. Officers were normally reimbursed for unused leave only once during their career,<sup>1</sup> though it did include the full BAQ rate.

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<sup>1</sup> An officer who was released from active duty then recalled and released again could "cash in" leave more than once. Reservists on extended active duty could and did "cash in" leave repeatedly.

The DoD attempted to correct those inequities by submitting a legislative proposal to reimburse leave for all members on the basis of the basic pay, BAQ, and BAS rates applicable to each members' grade and length of service. The proposal would also have placed enlisted personnel and reserve officers on the same basis as all other officers by limiting reimbursement to a total of 60 days.

P. L. 94-381, just enacted, departing from the DoD legislative proposal, resolves the differential rate inequity by allowing no BAQ or BAS payment to anyone - officer or enlisted - except the leave balance as of 31 August 1976, and presuming the leave balance doesn't decrease below that level in the future. It does limit career payment to enlisted personnel and to reservists to 60 days as was the practice for officers. Thus, there is now consistent treatment for the entire force and the inequity resulting from differential reimbursement bases no longer exists. However, this new system now makes it significantly less expensive to work members than to allow them to use their leave entitlement, reimbursing them at the reduced rate later. This may be viewed as a larger inequity than the one corrected. It can be minimized only if each commander acts to insure that every member can take the leave to which he is entitled under the law. When military exigencies preclude the taking of earned leave, the inequity cannot be prevented.

The QRMC Staff recommends that the QRMC support a DoD legislative proposal to correct this deficiency, by reimbursing for unused leave with basic pay plus BAQ and BAS at the rates applicable to the individual.

E. BAQ Rates for Members Married to Each Other.

A member who is entitled to basic pay is entitled to a basic allowance for quarters when government quarters are not available.<sup>1</sup> When two members are married to each other, the BAQ entitlement accrues to each member when government quarters are not provided. However, each member only receives BAQ at the without dependent rate if there are no other dependents from the marriage.<sup>2</sup> Two service members in pay grade E-4, married to each other and not occupying government quarters, each receive \$90.30 per month for BAQ, or \$180.60, provided there are no additional dependents of the marriage. A married E-4, not married to a member of the military, currently receives \$134.40 BAQ each month if his family is not occupying government quarters.

When there is an additional dependent of the marriage of two military members, then one of the members with dependent(s) is entitled to BAQ at the with dependents rate and the other member is entitled to BAQ at the without dependents rate. Using the same example used above, one member receives \$134.40 a month and the other receives \$90.30 a month, for a total of \$224.70. This is \$90.30 more than a comparable E-4 with at least one dependent who was not married to another member would receive.

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<sup>1</sup> Section 403(a), Title 37 U.S.C. (TAB A)

<sup>2</sup> Department of Defense Military Pay and Entitlements Manual, pp. 3-3 to 3-32.1

When the grades of the members are different, the with dependent rate is normally applied to the member in the higher grade.<sup>1</sup> Therefore, members married to each other, jointly--but not individually--receive a substantially greater allowance for quarters than other service members.

Members married to each other only receive the BAQ when they are not furnished government quarters. When government quarters are provided, they are not entitled to the BAQ.<sup>2</sup> Continuing the example, the members married to each other jointly "forfeit" a greater amount (\$46.20 to \$90.30 per month) for their government-furnished quarters than another member of like grade with a non-member spouse would forfeit. While occupying government quarters, the couple with a non-member "forfeits" only about 60 percent as much money (\$134.40 vs. \$224.70), even though both might be working, than the couple which are both service members. Thus, members married to each other must "forfeit" a greater amount of RMC for equivalent quarters when compared to another member of the same grade who has a non-member, working spouse.

This rather elaborate set of rules is an attempt to resolve the inequity which resulted from denying BAQ to a member who married another member. The concern which led to them emphasizes the extent to which

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<sup>1</sup> Department of Defense Military Pay Entitlements Manual, pp. 3-31  
3-32.1

<sup>2</sup> Ibid.



both DoD management and military personnel view pay for service to include not just basic pay but also the cash allowance as well.

The resolution of this equity issue requires two separate decisions. The first decision is the rate of BAQ that should be paid to members married to each other. The second decision is the rate members should be charged when they are provided government family quarters.

There are two alternatives for the BAQ rate for members married to each other. The first is to do nothing and leave the system as is; the second is to pay both members at the with dependents rate. The first alternative does not remedy the perceived inequity in BAQ payments. The second alternative would treat all members the same in terms of BAQ payments by removing the distinction of whether they are married to another member or not. In effect, the second alternative treats BAQ as a part of compensation rather than as an allowance to obtain quarters. However, since a requirement to obtain that level of BAQ is to have a dependent, it cannot really be viewed in that manner, and the second alternative is not more equitable than the present system. Adoption of the second alternative would increase the DoD annual cost by approximately \$26 million. (Details in TAB L.)

Under the present BAQ "forfeiture" system, there are three alternatives for "charging" members married to each other when they are assigned to family quarters. The first is to continue to "charge" both members at their prevailing BAQ rate. A second is to "charge" only one member, either the higher or lower ranking one. The third is to "charge" each member one-half of their prevailing BAQ. The first alternative is current

policy. It treats each individual member in the same manner regardless of the military membership status of their spouse. The second alternative of "charging" only one member effectively recognizes the requirement to only provide one set of government quarters; however, it now places the members married to each other in a different category than other members and increases their collective RMC. The third alternative--"charging" each one-half of their BAQ--is basically a modification of the second, however, it recognizes the possibility that the members may hold different ranks and adjusts the "charges" accordingly while minimizing the impact on RMC.

The issue of the proper BAQ rate for members married to each other will become relatively more significant as the number of member couples tends to increase concurrent with the increase in numbers of women in the service. It should be weighed in making judgments about the relative desirability of a paternalistic pay and allowances system, or shifting to either an expense-based pay and allowances system or to pay system based primarily on service performed.

## Title 37 United States Code

### § 403. Basic allowance for quarters

(a) <sup>45</sup> Except as otherwise provided by law, a member of a uniformed service who is entitled to basic pay is entitled to a basic allowance for quarters at the monthly rates prescribed in accordance with section 1009 of this title, according to the pay grade in which he is assigned or distributed for basic pay purposes.<sup>46a</sup>

(b) <sup>46</sup> Except as otherwise provided by law, a member of a uniformed service who is assigned to quarters of the United States or a housing facility under the jurisdiction of a uniformed service, appropriate to his grade, rank, or rating and adequate for himself, and his dependents, if with dependents, is not entitled to a basic allowance for quarters. However, except as provided by regulations prescribed under subsection (j) of this section, a commissioned officer without dependents who is in a pay grade above pay grade O-3 and who is assigned to quarters in the United States or a housing facility under the jurisdiction of a uniformed service, appropriate to his grade or rank and adequate for himself, may elect not to occupy those quarters and instead to receive the basic allowance for quarters prescribed for his pay grade by this section.<sup>46</sup>

(c) A member of a uniformed service without dependents is not entitled to a basic allowance for quarters while he is on field duty, unless his commanding officer certifies that the member was necessarily required to procure quarters at his expense, or while he is on sea duty. For the purposes of this subsection, duty for a period of less than three months is not considered to be field duty or sea duty.

(d) A member of a uniformed service who is assigned to quarters of the United States or a housing facility under the jurisdiction of a uniformed service may not be denied the basic allowance for quarters if, because of orders of competent authority, his dependents are prevented from occupying those quarters.

(e) Notwithstanding any other law (including those restricting the occupancy of housing facilities under the jurisdiction of a department or agency of the United States by members, and their dependents, of the armed forces above specified grades, or by members, and their dependents, of the Environmental Science Services Administration [NOAA]<sup>47</sup> and the Public Health Service), a member of a uniformed service, and his dependents, may be accepted as tenants in, and may occupy on a rental basis, any of those housing facilities, other than public quarters constructed or designated for assignment to and occupancy without charge by such a member, and his dependents, if any. Such a member may not, because of his occupancy under this subsection, be deprived of any money allowance to which he is otherwise entitled for the rental of quarters.

(f) <sup>48</sup> A member of a uniformed service without dependents who is in pay grade E-4 (four or more years' service), or above, is entitled to a basic allowance for quarters while he is in a travel or leave status between permanent duty stations, including time granted as delay en route or proceed time, when he is not assigned to quarters of the United States.

<sup>45</sup> Amended by sec. 34 of Public Law 86-715 (80 Stat. 1122; sec. 204 and 206 of Public Law 92-129 (85 Stat. 256, 259); sec. 2, 3, and 4(b) of the Dependents Assistance Act of 1960, as amended (50 U.S.C. app. 2202, 2203, 2204); and sec. 105 (1) and (2) of Public Law 93-64 (87 Stat. 148); and reprinted by sec. 3(6) of Public Law 93-419 (83 Stat.).

<sup>46a</sup> In accordance with 37 U.S.C. 1009, the President, on October 7, 1974, by Executive Order 11912, ordered the rates of monthly basic allowance for quarters for members of the uniformed services adjusted upward, effective October 1, 1974, as follows:

<sup>46</sup> Amended by sec. 10 of the Uniformed Services Pay Act of 1968 (77 Stat. 216); and sec. 100(2) of Public Law 90-64 (87 Stat. 148).

<sup>47</sup> See footnote 2, p. 2.

<sup>48</sup> Amended by sec. 1(3) of Public Law 90-207 (81 Stat. 651).



(g)<sup>49</sup> An aviation cadet of the Navy, Air Force, Marine Corps, or Coast Guard is entitled to the same basic allowance for quarters as a member of the uniformed services in pay grade E-4.

(h)<sup>49a</sup> The Secretary concerned, or his designee, may make any determination necessary to administer this section with regard to enlisted members, including determinations of dependency and relationship, and may, when warranted by the circumstances, reconsider and change or modify any such determination. This authority may be redelegated by the Secretary concerned or his designee. Any determination made under this section with regard to enlisted members is final and is not subject to review by any accounting officer of the United States or a court, unless there is fraud or gross negligence.

(i)<sup>49b</sup> Notwithstanding any other provision of law, the basic allowance for quarters to which an enlisted member may be entitled as a member with dependents shall not, for such period as the Secretary concerned may prescribe, be contingent on the right of such member to receive pay.

(j)<sup>49c</sup> The President may prescribe regulations for the administration of this section, including definitions of the words "field duty" and "sea duty".

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<sup>49</sup> Added by sec. 105(4) of Public Law 93-64 (87 Stat. 149).

<sup>49a</sup> See footnote 49.

<sup>49b</sup> See footnote 49.

<sup>49c</sup> Formerly subsection (g), redesignated as subsection "(j)" by sec. 105(5) of Public Law 93-64 (87 Stat. 149).



Summary of Changes in  
Basic Allowance for Quarters (BAQ)  
10 June 1922 to 1 January 1975

Act of 10 June 1922, P.L. 67-235 - Rental Allowance substituted for commutation system, as presently done. Rental allowance per room to be fixed by President. Rate set at \$20 per room per month. Number of allowances varied for officers depending on rank and whether they have dependents. Enlisted men entitled to allowance, originally set by President at \$22.50 a month (\$.75 per day). Enlisted men to receive a maximum of \$4 per day for subsistence and quarters allowance.

Act of June 1942, P.L. 77-607 - Changed to a fixed monthly sum depending on rank and dependents and varied from \$45 to \$120 a month. Enlisted personnel of first three grades to receive monthly allowance for dependent's quarters. Allowance for quarters and subsistence not to exceed \$5 per day for enlisted.

Act of 12 October 1949, P.L. 81-351 - Quarters allowances put on the same basis for both officers and enlisted. E4 (under 7 years service) down through E-1 shall be considered without dependents for purposes of computation of BAQ.

Act of 8 September 1950, P.L. 81-771 - Authorized dependent allowance for enlisted personnel with dependents regardless of pay grade, provided an allotment is in effect. The allotment must total the basic BAQ allowance to which he is entitled, plus \$40 to \$80 depending on rank.

Act of 19 May 1952, P.L. 82-346 - Raised quarters allowance 14% to reflect changes in cost of living since 1949.

Act of 20 May 1958, P.L. 85-422 - Provided that the new grades O-10 and O-9 shall receive BAQ equal to O-8. Provided that the new grades E9 and E8 will receive BAQ equal to that of an E-7.

Act of 10 July 1962, P.L. 87-531 - Raised quarters allowance for all grades. The bill provided an 8% raise for all E4 (less than 4 years service) down through E-1. The bill continues the "Q" allotment for the lower grades and recognizes the varying number of dependents.

Act of October 2, 1963, P.L. 88-132 - Authorized optional residency of government quarters for commissioned officers, O-4 and above, who do not have dependents.

Act of December 16, 1967, P.L. 90-207 - This legislation amended the Dependents Assistance Act of 1950 by increasing quarters allowance for enlisted personnel in pay grades E-1 through E-4 (4 years or less service).

Act of September 28, 1971, P.L. 92-129 - This legislation increased the rates for BAQ to 85% of the Federal Housing Authority (FHA) Standard.

Act of September 19, 1974, P.L. 93-419 - As a result of this legislation, BAQ rates, after the date of enactment, will be adjusted each time and in the same amount as General Schedule pay raises. The first adjustment on October 1, 1974 was a 5.52 percent increase.

A table of historical BAQ rates is attached.

Cost: The number of personnel drawing quarters allowance, plus its annual cost, is summarized below:

<u>Fiscal Year</u>	<u>Total Personnel</u>	<u>Cost (\$000)</u>	<u>Officers</u>	<u>Cost (\$000)</u>	<u>EM</u>	<u>Cost (\$000)</u>
1972	1,178,639	\$1,903,041	229,996	\$567,760	948,643	\$1,335,281
1973	1,101,014	1,859,918	214,259	494,217	886,755	1,365,701
1974	1,054,989	1,756,681	204,587	468,686	850,402	1,287,935
1975*	1,040,489	1,799,136	197,122	470,232	843,367	1,328,904
1976*	1,020,087	1,785,979	190,321	462,125	829,766	1,323,854

\* Budget Estimates

Monthly Rates  
Basic Allowance for Quarters

<u>Pay Grade</u>	<u>Year</u>	<u>Without Dependents</u>	<u>With Dependents</u>
O-10	1958	\$136.80	\$171.00
	1963	160.20	201.00
	1967	160.20	201.00
	1971	230.40	288.00
	1974	243.00	303.90
O-9	1958	136.80	171.00
	1963	160.20	201.00
	1967	160.20	201.00
	1971	230.40	288.00
	1974	243.00	303.90
O-8	1922	80.00	120.00
	1942	105.00	120.00
	1949	120.00	150.00
	1952	136.80	171.00
	1958	136.80	171.00
	1963	160.20	201.00
	1967	160.20	201.00
	1971	230.40	288.00
	1974	243.00	303.90
O-7	1922	80.00	120.00
	1942	105.00	120.00
	1949	120.00	150.00
	1952	136.80	171.00
	1958	136.80	171.00
	1963	160.20	201.00
	1967	160.20	201.00
	1971	230.40	288.00
	1974	243.00	303.90
O-6	1922	80.00	120.00
	1942	105.00	120.00
	1949	105.00	120.00
	1952	119.70	136.80
	1958	119.70	136.80
	1963	140.10	170.10
	1967	140.10	170.10
	1971	211.80	258.30
	1974	223.50	272.70

<u>Pay Grade</u>	<u>Year</u>	<u>Without Dependents</u>	<u>With Dependents</u>
O-5	1922	\$ 60.00 (< 20 yrs)	\$100.00 (< 20 yrs)
		80.00 (> 20 yrs)	120.00 (> 20 yrs)
	1942	105.00	120.00
	1949	90.00	120.00
	1952	102.60	136.80
	1958	102.60	136.80
	1963	130.20	157.50
	1967	130.20	157.50
	1971	198.30	238.80
	1974	209.10	252.00
O-4	1922	60.00 (< 23 yrs)	80.00 (< 14 yrs)
		80.00 (> 23 yrs)	100.00 (> 14 yrs)
			120.00 (> 23 yrs)
	1942	90.00 (< 23 yrs)	105.00 (< 23 yrs)
		105.00 (> 23 yrs)	120.00 (> 23 yrs)
	1949	82.50	105.00
	1952	94.20	119.70
	1958	94.20	119.70
	1963	120.00	145.05
	1967	120.00	145.05
O-3	1922	40.00 (< 7 yrs)	60.00 (< 7 yrs)
		60.00 (> 7 yrs)	80.00 (> 7 yrs)
			100.00 (> 17 yrs)
	1942	75.00 (< 17 yrs)	90.00 (< 17 yrs)
		90.00 (> 17 yrs)	105.00 (> 17 yrs)
	1949	75.00	90.00
	1952	85.50	102.60
	1958	85.50	102.60
	1963	105.00	130.05
	1967	105.00	130.05
	1971	158.40	195.60
	1974	167.10	206.40



<u>Pay Grade</u>	<u>Year</u>	<u>Without Dependents</u>	<u>With Dependents</u>
O-2	1922	\$ 40.00 (< 10 yrs)	\$ 40.00 (< 3 yrs)
		60.00 (> 10 yrs)	60.00 (> 3 yrs)
	1942	60.00 (< 10 yrs)	80.00 (> 10 yrs)
		75.00 (> 10 yrs)	75.00 (< 10 yrs)
	1949	67.50	90.00 (> 10 yrs)
	1952	77.10	82.50
	1958	77.10	94.20
	1963	95.10	94.20
	1967	95.10	120.00
	1971	138.60	120.00
	1974	146.40	175.80
			185.40
O-1	1922	40.00	40.00 (< 5 yrs)
	1942	45.00 (< 5 yrs)	60.00 (> 5 yrs)
		60.00 (> 5 yrs)	60.00 (< 5 yrs)
	1949	60.00	75.00 (> 5 yrs)
	1952	68.40	75.00
	1959	68.40	85.50
	1963	85.20	85.50
	1967	85.20	110.10
	1971	108.90	110.10
	1974	114.90	141.60
W-4	1949	82.50	149.40
	1952	94.20	105.00
	1958	94.20	119.70
	1963	120.00	119.70
	1967	120.00	145.05
	1971	172.50	145.05
	1974	182.10	207.90
			219.30
W-3	1949	75.00	90.00
	1952	85.50	102.60
	1958	85.50	102.60
	1963	105.00	130.05
	1967	105.00	130.05
	1971	155.40	191.70
	1974	164.10	202.20

<u>Pay Grade</u>	<u>Year</u>	<u>Without Dependents</u>	<u>With Dependents</u>
W-2	1949	\$ 67.50	\$ 82.50
	1952	77.10	94.20
	1958	77.10	94.20
	1963	95.10	120.00
	1967	95.10	120.00
	1971	137.10	173.70
	1974	144.60	183.30
W-1	1949	60.00	75.00
	1952	68.40	85.50
	1958	68.40	85.50
	1963	85.20	110.10
	1967	85.20	110.10
	1971	123.90	160.80
	1974	130.80	169.80

<u>Pay Grade</u>	<u>Year</u>	<u>Without Dependents</u>	<u>One Dependent</u>	<u>Two Dependents</u>	<u>Three or more Dependents</u>
E-9	1958	\$ 51.30	\$ 77.10	\$ 77.10	\$ 96.90
	1963	85.20	120.00	120.00	120.00
	1967	85.20	120.00	120.00	120.00
	1971	130.80	184.20	184.20	184.20
	1974	138.00	194.40	194.40	194.40
E-8	1958	51.30	77.10	77.10	96.90
	1963	85.20	120.00	120.00	120.00
	1967	85.20	120.00	120.00	120.00
	1971	122.10	172.20	172.20	172.20
	1974	128.70	181.80	181.80	181.80
E-7 1/2	1922				
	1942				
	1949	45.00	67.50	67.50	67.50
	1950	45.00	67.50	67.50	85.00
	1952	51.30	77.10	77.10	96.90
	1958	51.30	77.10	77.10	96.90
	1963	75.00	114.90	114.90	114.90
	1967	75.00	114.90	114.90	114.90
	1971	104.70	161.40	161.40	161.40
	1974	110.40	170.40	170.40	170.40

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<u>Pay</u> <u>Grade</u>	<u>Year</u>	<u>Without</u> <u>Dependents</u>	<u>One</u> <u>Dependents</u>	<u>Two</u> <u>Dependents</u>	<u>Three or More</u> <u>Dependents</u>
E-6	<u>1/</u> 1922				
	<u>2/</u> 1942				
	1949	\$45.00	\$67.50	\$67.50	\$67.50
	1950	45.00	67.50	67.50	85.00
	1952	51.30	77.10	77.10	96.90
	1958	51.30	77.10	77.10	96.90
	1963	70.20	110.10	110.10	110.10
	1967	70.20	110.10	110.10	110.10
	1971	95.70	150.00	150.00	150.00
	1974	101.10	158.40	158.40	158.40
E-5	<u>1/</u> 1922				
	<u>2/</u> 1942				
	1949	45.00	67.50	67.50	67.50
	1950	45.00	67.50	67.50	85.00
	1952	51.30	77.10	77.10	96.90
	1958	51.30	77.10	77.10	96.90
	1963	70.20	105.00	105.00	105.00
	1967	70.20	105.00	105.00	105.00
	1971	92.70	138.60	138.60	138.60
	1974	97.80	146.40	146.40	146.40
E-4	<u>1/</u> 1922				
	<u>2/</u> 1942				
	1949(<7 yrs)	45.00	45.00	45.00	45.00
	(>7 yrs)	45.00	67.50	67.50	67.50
	1950	45.00	67.50	67.50	85.00
	1952	51.30	77.10	77.10	96.90
	1958	51.30	77.10	77.10	96.90
	1963(>4 yrs)	70.20	105.00	105.00	105.00
	(<4 yrs)	55.20	83.10	83.10	105.00
	1967(>4 yrs)	70.20	105.00	105.00	105.00
	(<4 yrs)	60.00	90.60	90.60	105.00
	1971(>4 yrs)	81.60	121.50	121.50	121.50
	(<4 yrs)	81.60	121.50	121.50	121.50
	1974	86.10	128.10	128.10	128.10

<u>Pay</u> <u>Grade</u>	<u>Year</u>	<u>Without</u> <u>Dependents</u>	<u>One</u> <u>Dependents</u>	<u>Two</u> <u>Dependents</u>	<u>Three or More</u> <u>Dependents</u>
<b>E-3 1/ 1922</b>					
<u>2/</u>	1942				
	1949	\$45.00	\$45.00	\$45.00	\$45.00
	1950	45.00	45.00	67.50	85.00
	1952	51.30	51.30	77.10	96.90
	1958	51.30	51.30	77.10	96.90
	1963	55.20	55.20	83.10	105.00
	1967	60.00	60.00	90.60	105.00
	1971	72.30	105.00	105.00	105.00
	1974	76.20	110.70	110.70	110.70
<b>E-2 1/ 1922</b>					
<u>2/</u>	1942				
	1949	45.00	45.00	45.00	45.00
	1950	45.00	45.00	67.50	85.00
	1952	51.30	51.30	77.10	96.90
	1958	51.30	51.30	77.10	96.90
	1963	55.20	55.20	83.10	105.00
	1967	60.00	60.00	90.60	105.00
	1971	63.90	105.00	105.00	105.00
	1974	67.50	110.70	110.70	110.70
<b>E-1 1/ 1922</b>					
<u>2/</u>	1942				
	1949	45.00	45.00	45.00	45.00
	1950	45.00	45.00	67.50	85.00
	1952	51.30	51.30	77.10	96.90
	1958	51.30	51.30	77.10	96.90
	1963	55.20	55.20	83.10	105.00
	1967	60.00	60.00	90.60	105.00
	1971	60.00	105.00	105.00	105.00
	1974	63.30	110.70	110.70	110.70

1/ The Act of 10 June 1922 provided that each enlisted man not furnished quarters or rations in kind shall be granted an allowance for quarters and subsistence, the value of which shall depend on the conditions under which the duty is being performed, and shall not exceed \$4.00 per day.

2/ The Act of 16 June 1942 provided for a maximum of \$5.00 per day for quarters.

NOTE: Dependents Assistance Act legislation rates for enlisted men are quoted where they are applicable between the years 1950 to 1973.

ODASD(MFP) CS  
21 Nov 74



# MONTHLY BASIC ALLOWANCE FOR QUARTERS RATES

Effective 1 October 1975

<u>Pay Grade</u>	<u>Without Depen- dents<sup>1</sup></u>	<u>With Depen- dents</u>
<u>Commissioned Officers:</u>		
O-10	\$255.30	\$319.20
O-9	255.30	319.20
O-8	255.30	319.20
O-7	255.30	319.20
O-6	234.60	286.20
O-5	219.60	264.60
O-4	198.00	238.80
O-3	175.50	216.60
O-2	153.60	194.70
O-1	120.60	156.90
<u>Warrant Officers:</u>		
W-4	191.10	230.40
W-3	172.20	212.40
W-2	151.80	192.60
W-1	137.40	178.20
<u>Enlisted Members:</u>		
E-9	144.90	204.00
E-8	135.00	190.80
E-7	115.80	178.80
E-6	106.20	166.20
E-5	102.60	153.60
E-4	90.30	134.40
E-3	80.10	116.10
E-2	70.80	116.10
E-1	66.60	116.10

<sup>1</sup> Not authorized for members without dependents who are on sea duty or in the field.

**COST OF CONSTRUCTION, MAINTENANCE AND OPERATION OF BACHELOR AND FAMILY HOUSING UNIT COSTS**  
**AT 1956 PRICES**  
**(Excludes Cost of Raw Land and Initial Furniture)**

<u>Type</u>	<u>Bedrooms</u>	<u>Gross Area</u> <u>Sq.Ft.<sup>1</sup></u>	<u>Construc-</u> <u>tion Costs</u> <u>Sq.Ft.<sup>2</sup></u>	<u>Percent of</u> <u>Total Units<sup>3</sup></u>	<u>Total</u> <u>Construction</u> <u>Costs<sup>2</sup></u>	<u>Monthly</u> <u>Amorti-</u> <u>zation<sup>4</sup></u>	<u>Maintenance</u> <u>and</u> <u>Operation<sup>5</sup></u>	<u>Total</u> <u>Monthly</u> <u>Cost<sup>6</sup></u>
<b>Family Housing:</b>								
Officers, grade 0-7 and over	4	2,070	\$14.40	1.0	\$29,808	\$141.35	\$129.38	\$270.73
Officers, grades 0-4 to 0-6	3 4	1,400 1,900	13.70 13.70	11.4 .7	19,180 26,030	90.95 123.43	87.50 118.75	178.45 242.18
Officers, grades 0-1 to 0-3	2 3 4	1,000 1,280 1,680	13.20 13.20 13.20	5.5 20.0 1.4	13,200 16,896 22,176	62.59 80.12 105.16	62.50 80.00 105.00	125.09 160.12 210.16
Enlisted, grades E-1 to E-7	2 3 4	928 1,145 1,400	12.50 12.50 12.50	24.1 32.8 3.1	11,600 14,313 17,500	55.01 67.87 82.99	58.00 71.56 87.50	113.01 139.43 170.49
<b>Total or average</b>		1,171	\$12.91	100.0	\$15,115	\$71.68	\$73.19	\$144.87
<b>Barracks, per man</b>		125	\$12.00	--	\$1,500	\$7.11	\$7.81	\$14.92
<b>Dormitories, per man</b>		125	\$14.00	--	\$1,750	\$8.30	\$7.81	\$16.11
<b>BAQ, per man</b>		450	\$13.33	--	\$6,000	\$28.45	\$28.13	\$56.58

- <sup>1</sup> Gross area for family housing does not include garages, carports, basements, patios or open porches. Gross area for barracks or dormitories does not include messing facilities, but does include the day room and toilet facilities.
- <sup>2</sup> Cost of completed building, with fixtures, but without furniture or raw land costs. Includes cost of site clearance, grading, landscaping, water, storm sewer, sanitary sewer, gas, electrical and communication lines, fencing, paving for streets, roads, parking, sidewalks; cost of design, engineering, supervision, inspection and administration cost of government furnished parts and materials. Except for furniture, this represents the cost of the unit ready for occupancy. Costs are for "average cost" territories.
- <sup>3</sup> Developed from 34 project reports DD-813 (5003 units) on which bids were taken from 1 Oct 55 to 29 Feb 56.
- <sup>4</sup> Monthly amount necessary to amortize the total construction cost over 25 years at 3% interest.
- <sup>5</sup> Includes heating, lighting, redecorating, minor modifications; repair of building, sidewalks, roads, sewers, utilities; repair of furniture and fixtures; maintenance of grounds. Costs figured at 75 cents per square foot per year.
- <sup>6</sup> This is the total monthly cost, exclusive of furniture and raw land, during the first 25 years. After 25 years the monthly cost would be for maintenance and operation only.

**TAB D**

Maximum Net Square Footage Standards<sup>1/</sup>  
For Construction of Family Quarters

<u>Pay Grade</u>	<u>Square Footage</u> <sup>2</sup>	<u>Number of Bedrooms</u>
0-7 thru 0-10	2100	4
0-6	1700	4
0-5 and 0-4	1550	4
	1400	3
0-1 thru 0-3	1550	5
	1450	4
	1320	3
	950	2
W-1 thru W-4	1550	5
	1450	4
	1320	3
	950	2
E-7 thru E-9	1550	5
	1450	4
	1350	3
	950	2
E-1 thru E-6	1550	5
	1350	4
	1200	3
	950	2

<sup>1/</sup>10 U.S.C. 4774

<sup>2/</sup>Footage is net floor area which does not include basements, service areas, closets, attics, garages or carports and stairwells.

CALCULATION OF TOTAL NET AUTHORIZED FOOTAGE  
FOR FAMILY QUARTERS

F-2

Pay Grade	Family Size	Number of Bedrooms Authorized	Square Footage Authorized	Number of Personnel in Category	Family Size Square Footage (000)	Average Authorized Net Square Footage
O-7 through O-10	N/A	N/A	2100	793	1665	2100
O-6		N/A	1700	5006	8510	1700
O-5	IV 4	4	1550	7013	10870	1526
	III 3	3	1400	1317	1844	
O-4	IV 4	4	1550	10536	16331	1518
	III 3	3	1400	2897	4056	
O3	IV 6	5	1550	874	1355	
	IV 5	4	1450	2793	4050	1140
	IV 4	3	1320	8034	10605	
	III 3	2	950	14087	13383	
O-2	IV 6	5	1550	190	295	
	IV 5	4	1450	370	537	1031
	IV 4	3	1320	1462	1930	
	III 3	2	950	8413	7992	
O-1	IV 6	5	1550	51	79	
	IV 5	4	1450	101	146	
	IV 4	3	1320	538	710	996
	III 3	2	950	5430	5159	
Total Commissioned Officer				69905	89517	1281
W-4	IV 6	5	1550	52	81	
	IV 5	4	1450	90	131	1284
	IV 4	3	1320	99	131	
	III 3	2	950	101	96	
W-3	IV 6	5	1550	244	378	
	IV 5	4	1450	375	544	1300
	IV 4	3	1320	413	545	
	III 3	2	950	358	340	
W-2	IV 6	5	1550	434	673	
	IV 5	4	1450	749	1086	1293
	IV 4	3	1320	917	1210	
	III 3	2	950	744	707	
W-1	IV 6	5	1550	161	250	
	IV 5	4	1450	287	416	1280
	IV 4	3	1320	337	445	
	III 3	2	950	324	308	
Total Warrant Officer				5685	7431	1291



CALCULATION OF TOTAL NET AUTHORIZED FOOTAGE  
FOR FAMILY QUARTERS  
(Cont.)

F-3

Pay Grade	Family Size	Number of Persons Authorized	Square Footage Authorized	Number of Personnel in Category	Family Size Square Footage (000)	Average Feet by Pay Grade
E-9	≥ 6	5	1550	1047	1623	1318
	≥ 5	4	1450	1089	1579	
	≥ 4	3	1350	1381	1864	
	≥ 3	2	950	1390	1321	
E-8	≥ 6	5	1550	2624	4067	
	≥ 5	4	1450	2776	4025	
	≥ 4	3	1350	3322	4485	
	≥ 3	2	950	2808	2668	
E-7	≥ 6	5	1550	8396	13014	
	≥ 5	4	1450	9645	13985	
	≥ 4	3	1350	12245	16531	
	≥ 3	2	950	9677	9193	
E-6	≥ 6	5	1550	10443	16187	1213
	≥ 5	4	1350	13947	18828	
	≥ 4	3	1200	20361	24433	
	≥ 3	2	950	19602	18622	
E-5	≥ 6	5	1550	4593	7119	1109
	≥ 5	4	1350	9039	12203	
	≥ 4	3	1200	19594	23513	
	≥ 3	2	950	37738	35851	
E-4	≥ 6	5	1550	354	549	1005
	≥ 5	4	1350	974	1315	
	≥ 4	3	1200	2448	2938	
	≥ 3	2	950	18505	17580	
E-3	≥ 6	5	1550	20	31	977
	≥ 5	4	1350	55	74	
	≥ 4	3	1200	352	422	
	≥ 3	2	950	14014	3813	
E-2	≥ 6	5	1550	21	33	962
	≥ 5	4	1350	40	54	
	≥ 4	3	1200	253	304	
	≥ 3	2	950	7277	6913	
E-1	≥ 6	5	1550	25	39	963
	≥ 5	4	1350	43	58	
	≥ 4	3	1200	327	392	
	≥ 3	2	950	8384	7965	
Total Enlisted Personnel				234809	273591	
Grand Total				310399	370449	
Average Square Foot/Person						1193.5

Standard Net Square Footage  
for Bachelor Quarters Ashore<sup>1</sup>

	<u>Square Feet</u>	<u>Remarks</u>
O-3 thru O-10	400 <sup>2</sup>	One person per room, living room, private bath and access to kitchen or closed mess.
W-1 thru O-2	250 <sup>2</sup>	One person per room, living/sleeping room, private bath.
E-7 thru E-9 <sup>6</sup>	200 <sup>2</sup>	One person per room and private bath
E-5 and E-6	90 <sup>3</sup>	2 persons per room and central latrine
E-1 thru E-4 except recruits	90 <sup>3,4</sup>	Not over 4 persons to a room; central latrine
E-1 (Recruit) <sup>7</sup>	72 <sup>5</sup>	Open bay, and central latrine

<sup>1</sup> DoD Inst. 4165.47, "Adequacy, Assignment, and Occupancy of Bachelor Housing (I&L)", October 23, 1974, Encl. 1.

<sup>2</sup> Net living area is measured from the inside face of the peripheral wall of the suite and includes all spaces and partitions thereby enclosed.

<sup>3</sup> Net living area in this instance is the clear area in the sleeping room allocated for an individual's bed, locker, and circulation.

<sup>4</sup> This square footage standard is an approximate standard. Quarters shall be declared adequate if they contain at least 85 square feet. Additionally, bachelor enlisted quarters contained in the FY 1970 and subsequent year programs which may have been designed at 80 to 90 square feet as adequate for E-1 through E-4 shall continue as adequate quarters for those grades.

<sup>5</sup> Net living area is one equal share per room of the squad room. The squad room is measured to the inside face of the peripheral walls.

<sup>6</sup> The Marine Corps is authorized the E-7 thru E-9 standard for E-6's.

<sup>7</sup> This standard is for E-1 recruits and trainees. The bulk of E-1's are in this category.

Estimate of Maximum Net Square Footage and Compensation  
Cost of Bachelor Quarters by Pay Grade

Pay Grade	# of Single Personnel Not Drawn	Estimated <sup>1</sup> # Affloot	Estimated <sup>2</sup> # In Short	Net # in Troop Housing	Square Footage Guidance <sup>3</sup>	Total Square Footage	Annual Cost of Troop Housing	Monthly Cost Per Member
0-10	1			1	400	400	1012	84.33
0-9	3			3	400	1200	3036	84.33
0-8	3			3	400	1200	3036	84.33
0-7	2			2	400	800	2024	84.33
0-6	751	118	18	615	400	246000	622380	84.33
0-5	1370	215	33	1122	400	448800	1135464	84.33
0-4	2506	393	60	2053	400	821200	2077636	84.33
0-3	4079	640	98	3341	400	1336400	3381092	84.33
0-2	4073	639	98	3336	250	834000	2110020	52.71
0-1	9872	1549	236	8087	250	2021750	5115028	52.71
<b>Total Commissioned Officers</b>	<b>22660</b>	<b>3554</b>	<b>543</b>	<b>18563</b>	<b>---</b>	<b>5711750</b>	<b>14450728</b>	<b>64.87</b>
W-4	128	21	3	104	250	26000	65780	52.71
W-3	325	51	8	266	250	66500	168245	52.71
W-2	189	31	4	154	250	38500	97405	52.71
W-1	-0-	-0-	-0-	-0-	250	-0-	-0-	52.71
<b>Total, Warrant Officers</b>	<b>642</b>	<b>103</b>	<b>15</b>	<b>524</b>	<b>250</b>	<b>131000</b>	<b>331430</b>	<b>52.71</b>
<b>Total, All Officers</b>	<b>23302</b>	<b>3657</b>	<b>558</b>	<b>19087</b>	<b>-</b>	<b>5842750</b>	<b>14782158</b>	<b>64.54</b>
E-9	370	79	13	278	200	55600	140668	42.17
E-8	1127	227	37	869	200	173600	439714	42.17
E-7	4769	960	160	3649	200	729800	1846394	42.17
E-6	12457	2518	420	9519	120	1142240	2889968	25.30
E-5	53928	10906	1817	41205	120	4944000	12509838	25.30
E-4	194439	39328	6554	148557	120	17826810	45101905	25.30
E-3	197810	40414	6735	152661	120	18319320	46347880	25.30
E-2	183011	37015	6168	139828	120	16779540	42451781	25.30
E-1	128115	25936	4322	97857	102	9981414	25252977	21.50
<b>Total, Enlisted</b>	<b>778026</b>	<b>157377</b>	<b>26226</b>	<b>594423</b>	<b>-</b>	<b>60953013</b>	<b>176981125</b>	<b>24.81</b>
<b>Total, All</b>	<b>801328</b>	<b>161034</b>	<b>26784</b>	<b>613510</b>	<b>-</b>	<b>75795764</b>	<b>191763283</b>	<b>26.05</b>

1 Based on consolidation of FY 76 manyears and family size percentages. Numbers receiving BAQ payments were subtracted from result to estimate those in QIK.

2 See work papers on file for details.

3 See preceding page. 30 square feet was added to E-6 and below standard to account for the per capita share of common lounges and latrines.

4 Based on cost per square foot of \$2.54.

## COST/BENEFIT ANALYSIS PARAMETERS

### ● Population.

The population was estimated from the manpower strengths contained in the FY 76 DoD Budget Submission adjusted to reflect first term personnel for each grade.

### ● Replacement Costs.

Replacements costs were obtained from the Office of Director of Personnel Management Systems. The costs consist of recruiting cost, basic training and the next level of training costs plus pay, and allowances for the given initial term of service. Estimates are conservative.

### ● Value.

Estimated for the first term population based on the data in the basic paper and adjusted for the population concerned (see Appendix 1).

● Elasticity of Reenlistment/Continuation are mid range estimates of the elasticity figures from previous service and DoD studies (Appendices 2 and 3).

### ● Reenlistment/Continuation Rates.

Officers. The rate reflects the continuation rate of officers through the fourth year as determined by the OASD actuarial consultants in the 1965 Multiple Decrement Table with DoD composites adjusted to June 30, 1972 force structure (Appendix 4).



Enlisted. The rate was extracted from the DoD Personnel Statistical Manual P. 29.22 OASD (Comptroller).

● Total Compensation was calculated from information provided by the Statistical Group of the Third Quadrennial Review of Military Compensation for population concerned. (Appendix 5).

● Weighted Costs Was taken from the attached paper and adjusted for the population concerned. (Appendices 6 and 7).

POPULATION

	a	b	c	d	e	f
<u>Officers</u>	<u>Single T.C. #</u>	<u>Single BAO</u>	<u>Single QIK</u>	<u>Married T.C.</u>	<u>Married BAO</u>	<u>Married QIK</u>
04	\$ 32,074	4	3	\$ 32,247	43	17
03	26,736	1,394	521	27,103	6,922	3,285
02	21,288	839	420	21,830	1,627	1,072
01	15,714	$\frac{73}{2,310}$	$\frac{102}{1,046}$	16,304	$\frac{108}{8,700}$	$\frac{63}{4,437}$
		T.C. \$56.4 M (a x b)	\$23.3 M (a x c) - \$1.3M	\$226.3 M (d x e)	\$115.3 (d x f) + \$1.3 M	
<hr/>						
<u>Enlisted</u>						
E-6	\$ 15,867	37	60	\$ 16,913	617	308
E-5	13,437	2,973	6,976	14,304	22,167	9,164
E-4	11,602	9,313	61,463	12,337	55,210	7,050
E-3	10,518	987	13,968	11,094	6,180	322
E-2	9,856	107	4,622	10,608	1,007	190
E-1	9,053	$\frac{10}{13,427}$	$\frac{1,373}{88,462}$	9,867	$\frac{159}{85,340}$	$\frac{93}{17,127}$
		T.C. \$160.1 M (a x b)	\$946.0 M (a x c) - \$66.7 M	\$1,089.4 M (d x e)	\$246.3 M (d x f) + \$16.5	

1. Excludes members aboard ships and in short tour areas.

TABLE II.10.2. Projected Army ROTC Enrollment Rates and Pay Elasticities  
Without the Draft

FISCAL YEAR	ENROLLMENT RATES 1970 PAY SCALE <sup>1</sup>		PAY ELASTICITIES		ENROLLMENT RATES EQUITY PAY SCALE <sup>2</sup>	
	MODEL	SURVEY	MODEL	SURVEY	MODEL	SURVEY
1971	.047	.035	1.09	1.12	.060	.045
1972	.054	.039	1.05	1.09	.068	.050
1973	.068	.048	0.97	1.03	.084	.060
1974	.079	.055	0.92	1.00	.097	.069
1975	.088	.061	0.89	0.96	.108	.076
1980	.111	.075	0.80	0.89	.133	.092

<sup>1</sup>See Ch. 5, Table 5-II of the All-Volunteer Commission's Report (1970).

<sup>2</sup>See Ch. 5, Table 5-III of the All-Volunteer Commission's Report (1970).

Source: President's Commission on All-Volunteer Armed Force  
Page II-10-19, Volume I, U. S. Government Printing Office,  
November 1970

Table 5

A Comparison of Pay Elasticities for First-Term Reenlistments

Author/Study	Data Base		Elasticity
	Time Period	Service(s)	
Sources of IF Tables			
1. Enns (Rand)	1971-74	Army, Navy Air Force	2.16
2. 1968 Study (OSD)	1966-67	Total DoD	1.64-2.71
Other Pay Studies			
1. Gilman (CNA)	1964	Navy	2.25
2. Quigley & Wilburn (AF)	1960-66	Air Force	4.42
3. Nelson (IDA)	1967	Army	2.43
4. Grubert & Weiher (CNA)	1968	Navy	2.15
5. Wilburn (Gates Commission)	(a) 1968	Air Force	2.36
	(b) 1960-66	Air Force	1.97
6. Nelson & Wilburn (IDA/OSD)	1967-68	Total DoD	3.17
7. McCall & Wallace (Rand)	1962	Air Force	3.2-5.2
8. Altergott (Navy PGS)	1964-70	Navy	1.77
9. GAO Study	1971-72	Army	1.60
		Navy	2.11
		Air Force	2.30
10. Foch (Rand)	1971-73	Navy	6.2
11. Kleinman & Shughart (CNA)	1965-67	Navy	2.20
	1968-69	Navy	3.07
	1971-72	Navy	4.24
12. Enns (Rand)	1971	Army	2.10
		Navy	2.58
		Air Force	3.40
13. Haber & Stewart (GWU)	1971-72	Navy	2.38-2.69
14. Massell (Rand)	1972	Air Force	2.3



1965 MULTIPLE DECREMENT TABLE WITH DD COMPOSITES ADJUSTED TO JUNE 30, 1973 FORCE STRUCTURE

DEPARTMENT OF DEFENSE OFFICERS

COMPLETED YEARS OF SERVICE	NUMBER AT BE- GINNING OF YEAR	AVERAGE STRENGTH	RETIREMENT			END OF TERM	DEATH	OTHER
			TEMPORARY DISABILITY	PERMANENT DISABILITY	NON- DISABILITY			
0	1000000	996846	305	97	0	0	1019	4884
1	991631	983389	432	124	0	0	1603	17243
2	974247	755780	514	134	0	0	1467	354500
3	617272	525825	473	124	0	0	1543	174707
4	436385	403529	355	136	0	0	1245	63977
5	370672	343553	318	64	0	0	1117	42729
6	326444	312781	290	66	0	0	940	25931
7	259117	289718	280	69	0	0	889	17561
8	290318	273896	278	77	0	0	822	11667
9	267474	262676	281	86	0	0	767	4662
10	257878	227537	249	93	0	0	638	5715
11	224249	221479	253	108	0	0	601	4574
12	218703	207135	243	115	0	0	540	3455
13	204938	203292	247	136	0	0	512	2397
14	201646	200171	251	160	0	0	484	2056
15	198695	197138	253	184	0	0	459	2219
16	195500	194223	256	208	0	0	438	1813
17	192465	191629	259	280	0	0	427	1507
18	190392	189482	268	313	0	0	431	884
19	188432	187765	281	257	0	0	455	499
20	187000	186102	935	1501	26413	10770	403	0
21	146973	120142	633	1046	15968	26631	277	0
22	102418	102416	488	781	12348	0	243	0
23	88253	82633	410	895	8341	980	235	0
24	77597	72197	335	996	9457	0	213	0
25	66694	62609	339	629	7814	0	193	0
26	58521	53860	432	351	5385	1198	178	0
27	50397	47207	249	523	5421	0	167	0
28	44027	43674	194	500	4151	953	155	0
29	38174	33441	190	398	4139	2304	131	0
30	31012	15101	317	645	4611	13069	71	0
31	12259	10593	136	484	2530	0	56	0
32	9433	7735	106	344	1903	0	44	0
33	5316	5570	83	244	1370	0	35	0
34	4304	4176	66	174	989	0	27	0
35	3544	3092	53	123	715	0	22	0
36	2635	2615	24	51	2550	0	10	0
37	0	0	0	0	0	0	0	0
TOTAL		3021920	11078	12556	114030	92107	19337	750892
SELECTION CUT WITH 20 OR MORE YEARS OF SERVICE					55796	-55795		
ADJUSTED TOTAL					169825	36312		
TOTAL CONTINUING TO RETIREMENT								

Comparison of Average Assume All Cash  
Regular Military Compensation Between Single  
and Married Personnel by Pay Grade

Pay Grade	Single		Married		Single as Percent of Married Amount	
	Tax Advantage	RMC	Tax Advantage	RMC	Tax Advantage	RMC
O-9	4,953	50,928	4,014	50,756	123	101
O-8	4,196	46,010	3,511	46,084	120	100
O-7	3,509	40,551	2,962	40,571	118	99
O-6	2,707	33,791	2,177	33,858	124	100
O-5	2,072	27,858	1,587	27,906	131	100
O-4	1,577	22,901	1,213	23,025	130	99
O-3	1,181	19,090	949	19,352	124	99
O-2	786	15,200	680	15,587	116	98
O-1	601	11,220	586	11,641	103	96
E-9	1,104	18,420	928	18,950	119	97
E-8	814	15,553	709	16,118	115	96
E-7	632	13,268	667	14,059	94	94
E-6	629	11,329	655	12,076	96	94
E-5	615	9,620	596	10,213	103	94
E-4	524	8,284	520	8,809	101	94
E-3	471	7,510	450	7,921	105	95
E-2	433	7,037	427	7,574	101	93
E-1	407	6,464	394	7,045	103	92

TOTAL MILITARY COMPENSATION DISPLAY  
FY 1972 BUDGET ESTIMATE  
(\$ MILLIONS)

ELEMENT	COST		SALE	
	\$ AMOUNT	% OF TOTAL	\$ AMOUNT	% OF TOTAL
A. SALARY PAYMENTS				
BASIC PAY	12414.2	51.	12414.2	51.
SUBSISTENCE (TOTAL)	1733.4	6.	1733.4	6.
BAS	1059.4		1059.4	
IN KIND	724.5		724.5	
QUARTERS (TOTAL)	2913.9	10.	2913.9	9.
BAS	1735.0		1735.0	
IN KIND-FAMILY HOUSING	938.6		938.6	
IN KIND-BACHELOR HOUSING	191.3		191.3	
FEDERAL TAX ADVANTAGE	1120.7	4.	1120.7	4.
MILITARY EQUIVALENT SALARY	21339.4	71.	21339.4	73.
LESS MILITARY ABSENCES	2126.0	7.	2126.0	7.
BASIC SALARY PAYMENTS	19233.4	54.	19233.4	51.
SPECIAL SALARY PAYMENTS	652.7	2.	652.7	2.
TOTAL SALARY PAYMENTS	19895.1	56.	19895.1	53.
B. MAJOR COMPENSATION BENEFITS				
MILITARY ESTATE PROGRAM				
TOTAL 1/	5922.0	20.	5922.0	19.
RETIREMENT ANNUITY	4939.6		4939.6	
SURVIVOR BENEFIT PROGRAM	117.0		117.0	
SOCIAL SECURITY RETIREMENT				
ANNUITY 2/	734.8		734.8	
DEATH GRATUITY	9.1		9.1	
D.I.C. 3/	121.5		121.5	
HEALTH CARE	1025.0	3.	1030.0	5.
HEALTH CARE ACCRUAL 1/	269.0	1.	672.0	2.
ANNUAL LEAVE TAKEN	1371.9	5.	1371.9	4.
MILICAL ABSENCES	362.6	1.	362.6	1.
HOLIDAYS	371.5	1.	371.5	1.
TOTAL MAJOR COMPENSATION BENEFITS	9322.0	31.	10630.0	34.
C. PREMIUM PAY (ATTACHMENT 2)	502.7	2.	502.7	2.
D. OTHER COMPENSATION BENEFITS				
COMMISSARY AND EXCHANGE 4/	188.7		188.7	
SEPARATION AND SEVERANCE PAY	122.4		122.4	
UNEMPLOYMENT COMPENSATION	194.6		194.6	
EDUCATION ASSISTANCE	22.2		22.2	
FHA/MORTGAGE INSURANCE	3.1		3.1	
GI BILL HOUSING	0.7		0.7	
TOTAL OTHER COMPENSATION BENEFITS	531.7	2.	531.7	2.
E. TOTAL COMPENSATION	30252.5	100.	31550.5	100.

BEST AVAILABLE COPY

General Note: Based on the President's Budget submission for FY 1976 manyears and dollar estimates with the following exceptions:

- (a) In kind housing, commissary and exchange - based on actual FY 1975 costs.
  - (b) Deferred benefits are represented as present values except for death gratuities. They are based, however, on the FY 1976 budget.
- 1 Normal costs are based on economic assumptions of: (a) 6% interest rate; (b) 4% pay growth; and (c) 4% CPI growth which results in a retired pay growth of 5.2%.
  - 2 Government FICA contribution less the medicare portion.
  - 3 Present value based on one year term insurance premium to buy that coverage.
  - 4 The consumption advantage is in fact the benefit that the military receives from shopping in a commissary or exchange. However the total consumption advantage does not result solely from the appropriated subsidy. Therefore, the objective compensation value (compensation cost as a proxy) is the value that should be used for compensation comparison purposes, whereas the total consumption advantage should be used in making program change decisions.

<u>Item</u>	<u>Compensation Cost/Value</u>	<u>Consumption Advantage</u> (midpoints)
Commissary	\$125.4	\$ 485.0
Exchange	8.6	705.0
Comm/Exch - Accrual	<u>54.7</u>	<u>359.6</u>
	\$188.7	\$1,549.6



SPECIAL SALARY PAYMENTS  
(\$Millions)

<u>Element</u>	<u>Cost</u>	<u>Value</u>
Aviation Career Incentive Pay	\$204.0	\$204.0
Special Pay (Health Profession)	118.3	118.3
Continuation Pay (Nuclear)	4.1	4.1
Reenlistment Bonus	217.7	217.7
Enlistment Bonus	75.5	75.5
Proficiency Pay (SDA)	42.3	42.3
Other Special Pays	<u>.8</u>	<u>.8</u>
Total Special Salary Payments	\$662.7	\$662.7

PREMIUM PAYS  
( \$Millions)

<u>Element</u>	<u>Cost</u>	<u>Value</u>
Fly Pay (Crew & Non-Crew)	\$ 33.2	\$ 33.2
Submarine Duty Pay	24.6	24.6
Parachute Pay	20.6	20.6
Sea Pay	29.1	29.1
Duty at Certain Places	32.4	32.4
Diving Duty Pay	4.0	4.0
Demolition Duty Pay	2.5	2.5
Other Premium Pays	6.3	6.3
Pay for Unused Accrued Leave <sup>1</sup>	<u>350.0</u>	<u>350.0</u>
Total Premium Pays	\$502.7	\$502.7

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<sup>1</sup> Public Law 93-381, enacted 14 July 1976, places enlisted accrued leave payments on the same basis as officers, but terminates payments for BAQ and BAS except for a saved pay provisions. It becomes effective 31 August 1976. Cost-end value estimates will be developed as soon as implementing rules are completed.

WEIGHTED COSTS  
OFFICERS

SINGLE

<u>Grade</u>		<u>Weighted</u>	
		<u>Cash</u>	<u>In-Kind</u> <sup>1</sup>
04	.4	\$ 9,504	\$ 3,048
03	73.5	2,935,764	528,924
02	24.0	1,546,445	266,112
01	2.1	105,648	64,632
		<u>\$ 4,597,361</u>	<u>\$ 862,716</u>
		\$ 4.6M	\$ .9M

MARRIED

<u>Grade</u>		<u>Weighted</u>	
		<u>Cash</u>	<u>In-Kind</u>
04	.4	\$ 123,216	\$ 65,544
03	73.5	17,991,660	9,508,104
02	24.0	3,801,324	2,805,636
01	2.1	<u>203,340</u>	<u>159,444</u>
		\$ 22,119,540	\$12,538,728
		\$ 22.1M	\$12.5M

<sup>1</sup> Excludes members aboard ships and in short tour areas.

WEIGHTED COSTS  
ENLISTED

SINGLE

<u>Grade</u>	<u>Percent in Grade of Total Population</u>	<u>Weighted</u>	
		<u>Cash</u>	<u>In-Kind</u> <sup>1</sup>
E-6	.5	\$ 47,148	\$ 18,360
E-5	20.2	3,660,360	2,134,656
E-4	64.9	10,091,568	18,807,684
E-3	10.5	948,708	4,274,208
E-2	2.9	90,912	1,414,332
E-1	.8	7,992	355,884
		<u>\$14,846,688</u>	<u>\$27,005,124</u>
		\$ 14.8M	\$27.0M

MARRIED

<u>Grade</u>	<u>Percent in Grade of Total Population</u>	<u>Weighted</u>	
		<u>Cash</u>	<u>In-Kind</u>
E-6	.5	\$ 1,230,545	\$ 949,133
E-5	20.2	40,858,214	25,798,493
E-4	64.9	89,042,688	17,994,420
E-3	10.5	8,609,976	798,689
E-2	2.9	1,402,952	464,436
E-1	.8	221,518	227,329
		<u>\$141,365,893</u>	<u>\$ 46,232,500</u>
		\$141.4M	\$ 46.2M

<sup>1</sup> Excludes members aboard ship and in short tour areas.

Appendix 7 to TAB G



EFFECTIVE CUMULATIVE BAQ ADJUSTMENT  
FROM NOVEMBER 1971 BASE

BASED ON 1974 ADJUSTMENT CONCEPT<sup>1</sup>

<u>Date</u>	<u>Civil Service Pay Raise <sup>2</sup></u>	<u>Military Basic Pay Raise</u>	<u>Military BAQ Raise</u>	<u>Effective Cumulative BAQ Adjustment from November 1971 Base</u>
November 71	---	---	---	0
January 72	5.5%	7.21%	0	5.50%
October 72	5.14	6.69	0	10.92
October 73	4.77	6.16	0	16.21
October 74	5.52	5.52	5.52	22.26
October 75	5.0	5.0	5.0	28.37

<sup>1</sup> Civil Service pay raise percentage applied equally to base pay, BAQ, and BAS

<sup>2</sup> Committee on Armed Services, U.S. House of Representatives, No. 94-5, Pay and Allowances of the Uniformed Service, 1975

TAB H

# BASIC ALLOWANCE FOR QUARTERS

All Cash for Members Without Dependents at With Dependents Rates

	Number of Members *	Monthly Rate	Annual Amount	Current Annual Amount	Increase
<u>Officers</u>					
O-10	-	\$319.20	\$ -	\$ -	\$ -
O-9	1	319.20	3,830.40	3,063.60	766.80
O-8	3	319.20	11,491.20	9,190.80	2,300.40
O-7	7	319.20	26,812.80	21,445.20	5,367.60
O-6	337	286.20	1,157,392.80	948,722.40	208,670.40
O-5	1,300	264.60	4,127,760.00	3,425,760.00	702,000.00
O-4	3,073	238.80	8,805,988.80	7,301,448.00	1,504,540.80
O-3	10,902	216.60	28,336,478.40	22,959,612.00	5,376,866.40
O-2	8,148	194.70	19,036,987.20	15,018,393.60	4,018,593.60
O-1	6,995	156.90	13,170,186.00	10,123,164.00	3,047,022.00
Total	30,766		74,676,927.60	59,810,799.60	14,866,128.00
<u>Warrant Officers</u>					
W-4	26	230.40	71,884.80	59,623.20	12,261.60
W-3	59	212.40	150,379.20	121,917.60	28,461.60
W-2	478	192.60	1,104,753.60	870,724.80	234,028.80
W-1	240	178.20	513,216.00	395,712.00	117,504.00
Total	803		1,840,233.60	1,447,977.60	392,256.00
Total - Officer and Warrant	31,569		76,517,161.20	61,258,777.20	15,258,384.00
<u>Enlisted</u>					
E-9	165	204.00	403,920.00	286,902.00	117,018.00
E-8	715	190.80	1,637,064.00	1,158,300.00	478,764.00
E-7	2,692	178.80	5,775,955.20	3,740,803.20	2,035,152.00
E-6	7,721	166.20	15,398,762.40	9,839,642.40	5,559,120.00
E-5	23,156	153.60	47,681,139.20	28,509,637.20	14,171,472.00
E-4	29,425	134.40	47,456,640.00	31,884,930.00	15,571,710.00
E-3	14,218	116.10	19,808,517.60	13,666,341.60	6,142,176.00
E-2	4,356	116.10	6,068,779.20	3,700,857.60	2,367,921.60
E-1	846	116.10	1,178,647.20	676,123.20	502,524.00
Total	83,294		140,409,424.80	93,463,567.20	46,945,857.60
GRAND TOTAL	114,863		216,926,586.00	154,722,344.40	62,204,241.60

\* Source: FY76 President's Budget Submission

TAB I

# BASIC ALLOWANCE FOR QUARTERS

Difference in Cost Arising From  
Conversion of Members With Dependents to  
Current Without Dependents Rate

	Members With Dependents (1)	Without Dependents Rate (2)	Annual Rate (3)	Annual (1 x 3) (4)
<u>Officers</u>				
O-10	2	\$255.30	\$3,063.60	\$ 6,127.20
O-9	7	255.30	3,063.60	21,445.20
O-8	133	255.30	3,063.60	407,458.80
O-7	219	255.30	3,063.60	670,928.80
O-6	8,648	234.60	2,815.20	24,345,849.60
O-5	21,658	219.60	2,635.20	57,073,161.60
O-4	34,479	198.00	2,376.00	81,684,504.00
O-3	54,306	175.50	2,106.00	114,368,436.00
O-2	15,829	153.60	1,843.20	29,176,012.80
O-1	10,425	120.60	1,447.20	15,087,060.00
Total	145,606			322,840,983.60
<u>Warrant Officers</u>				
W-4	1,211	191.10	2,293.20	2,777,065.20
W-3	3,604	172.20	2,066.40	7,447,305.60
W-2	4,482	151.80	1,821.60	8,164,411.20
W-1	1,389	137.40	1,648.80	2,290,183.20
Total	10,686			20,678,965.20
<u>Enlisted</u>				
E-9	8,238	144.90	1,738.80	14,324,234.40
E-8	21,178	135.00	1,620.00	34,308,360.00
E-7	73,836	115.80	1,389.60	102,602,505.60
E-6	128,940	106.20	1,274.40	164,321,136.00
E-5	172,002	102.60	1,231.20	211,768,862.40
E-4	174,981	90.30	1,083.60	189,609,411.60
E-3	88,771	80.10	961.20	85,326,685.20
E-2	39,909	70.80	849.60	33,906,686.40
E-1	14,783	66.60	799.20	11,814,573.60
Total	722,638			847,982,455.20
GRAND TOTAL	878,930			1,191,502,404.00
Current Cost at With Dependents Rate (TAB J)				1,705,347,039.60
Estimated Cost at Without Dependents Rate				1,191,502,404.00
Difference				\$ 513,844,635.60

TAB J

Basic Allowance for Quarters  
Cash and In-Kind Rates  
Current Costs  
FY 1975 Rates

Without Dependents

Grade	Cash			In-Kind <sup>1</sup>		
	Number	Monthly Rate	Annual Cost	Number	Monthly Rate	Annual Cost
<u>Officers</u>						
O-10	-	\$255.30	\$ -	1	\$84.30	1,011.60
O-9	1	255.30	3,063.60	3	84.30	3,034.80
O-8	3	255.30	9,190.80	3	84.30	3,034.80
O-7	7	255.30	21,445.20	2	84.30	2,023.20
O-6	337	234.60	948,722.40	615	84.30	622,134.00
O-5	1,300	219.60	3,425,760.00	1,122	84.30	1,135,015.20
O-4	3,073	198.00	7,301,448.00	2,053	84.30	2,076,814.80
O-3	10,902	175.50	22,959,612.00	3,341	84.30	3,379,755.60
O-2	8,148	153.60	15,018,393.60	3,336	52.80	2,113,689.60
O-1	6,995	120.60	10,123,164.00	8,087	52.80	5,123,923.20
Total	30,766		59,810,799.60	18,563		14,460,436.80
<u>Warrant Officers</u>						
W-4	26	191.10	59,623.20	104	52.80	65,894.40
W-3	59	172.20	121,917.60	266	52.80	168,537.60
W-2	478	151.80	870,724.80	154	52.80	97,574.40
W-1	240	137.40	395,712.00	-	52.80	-
Total	803		\$ 1,447,977.60	524		\$ 332,006.40
Total, Officer and Warrant	31,569		\$ 61,258,777.20	19,087		\$14,792,443.20
<u>Enlisted</u>						
E-9	165	144.90	286,902.00	278	42.30	141,112.80
E-8	715	135.00	1,158,300.00	869	42.30	441,104.40
E-7	2,692	115.80	3,740,803.20	3,649	42.30	1,852,232.40
E-6	7,721	106.20	9,839,642.40	9,519	25.20	2,878,545.60
E-5	23,156	102.60	28,509,667.20	41,205	25.20	12,460,392.00
E-4	29,425	90.30	31,884,930.00	148,557	25.20	44,923,636.80
E-3	14,218	80.10	13,666,341.60	152,661	25.20	46,164,686.40
E-2	4,356	70.80	3,700,857.60	139,828	25.20	42,283,987.20
E-1	846	66.60	676,123.20	97,857	21.60	25,364,534.40
Total	83,294		93,463,567.20	594,423		\$176,510,232.20
GRAND TOTAL	114,863		\$154,722,344.40	613,510		\$191,302,675.40

<sup>1</sup> Excludes those at sea and in short tour areas.



With Dependents

<u>Grade</u>	<u>Cash</u>			<u>In-Kind</u>		
	<u>Number</u>	<u>Monthly Rate</u>	<u>Annual Cost</u>	<u>Number</u>	<u>Monthly Rate</u>	<u>Annual Cost</u>
<u>Officers</u>						
O-10	2	\$319.20	7,660.80	34	547.80	223,502.40
O-9	7	319.20	26,812.80	114	512.70	701,373.60
O-8	133	319.20	509,443.20	295	477.90	1,691,766.00
O-7	219	319.20	838,857.60	350	442.80	1,859,760.00
O-6	8,648	286.20	29,700,691.20	5,006	358.50	21,535,812.00
O-5	21,658	264.60	68,768,481.60	8,330	321.60	32,147,136.00
O-4	34,379	238.80	98,516,462.40	13,433	320.10	51,598,839.60
O-3	54,306	216.60	141,152,155.20	25,788	240.30	74,362,276.80
O-2	15,829	194.70	36,982,875.60	10,435	217.50	27,235,350.00
O-1	10,425	156.90	19,628,190.00	6,120	210.00	15,422,400.00
Total	145,606		396,131,630.40	69,905		\$226,778,216.40
<u>Warrant Officers</u>						
W-4	1,211	230.40	3,348,172.80	342	272.10	1,116,698.40
W-3	3,604	212.40	9,185,875.20	1,390	272.10	4,538,628.00
W-2	4,482	192.60	10,358,798.40	2,844	272.10	9,286,228.80
W-1	1,389	178.20	2,970,237.60	1,109	272.10	3,621,106.80
Total	10,686		25,863,084.00	5,685		\$ 18,562,662.00
Total, Officer and Warrant	156,292		421,994,714.40	75,590		\$245,340,878.40
<u>Enlisted</u>						
E-9	8,238	204.00	20,166,624.00	4,907	277.80	16,357,975.20
E-8	21,178	190.80	48,489,143.80	11,530	277.80	38,436,408.00
E-7	73,836	178.80	158,422,521.60	39,963	277.80	133,220,656.80
E-6	128,940	166.20	257,157,936.00	64,353	255.60	197,383,521.60
E-5	172,002	153.60	317,034,086.40	70,964	233.70	199,011,441.60
E-4	174,981	134.40	282,209,356.80	22,281	211.80	56,629,389.60
E-3	88,771	116.10	123,675,757.20	4,441	206.10	10,983,481.20
E-2	39,909	116.10	55,601,218.80	7,591	203.10	18,500,785.20
E-1	14,783	116.10	20,595,675.60	8,779	203.10	21,396,178.80
Total	722,638		\$1,283,352,325.20	234,809		\$691,919,838.00
GRAND TOTAL	878,930		1,705,347,039.60	310,399		\$937,260,716.40

Cost of Raising BAO to Married Rates Where Both  
Spouses are Members

1. Facts bearing on the problem.

Data on the number of members married to each other is not available for all services. The only data available is for Air Force members, however, it does not provide detail on the number occupying government quarters. The data was obtained from Headquarters, Department of the Air Force, AF/DPW, and it represents May 1975.

2. Assumptions.

a. Data on the proportion of members married to each other applies to the other services.

b. Members married to each other are predominately in officer grades O-1 to O-4 and enlisted grades E-1 to E-5. Note: 96% of married Air Force women officers are in grades O-1 to O-4 and 99% of married A-F enlisted women are in grades E-1 to E-5.

c. All members are receiving a cash BAO at the without dependents rate.

d. The preceding assumptions will overstate the cost due to the actual grade spread and the fact that some married members occupy government quarters.

Women Service Members  
as of 31 May 1975

<u>Service</u>	<u>Officer</u>	<u>Enlisted</u>	<u>Total</u>
Army	4,731	36,864	41,595
Navy	3,925 <sup>1</sup>	16,927	20,852
Air Force	5,151	24,620	29,741
Marine Corps	351	2,774	3,125
Total	13,954	81,359	95,313

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<sup>1</sup> Includes 174 Officer Candidates

Source: OASD (Comptroller) Directorate for Information, Operations and Control, 8 August 1975, Display P25.6

TAB L

	<u>Calculations</u>	
	<u>Officers</u>	<u>Enlisted</u>
Total Number of Women	13,954	81,359
% of Women Married to Other <sup>1</sup> Members (per AF data)	<u>.136</u>	<u>.274</u>
Estimated Number of Women Married to Other Members	1,898	22,292
X2 (to account for spouse)	<u>X2</u>	<u>X2</u>
Total Members Married	3,796	44,584

Calculation: Additional Cost of Paying All Members Married to Each  
Other With Dependents BAQ Rate Rather Than at Without  
Dependents Rate

	<u>Officers</u>	<u>Enlisted</u>
1. Number Married to Each Other	3,796	44,584
2. Average Monthly With Dependents BAQ Rate <sup>2</sup>	\$201.75	\$127.26
3. Average Monthly Without Dependents BAQ Rate <sup>2</sup>	\$161.92	\$ 82.08
4. Total Cost If All Paid At With Dependents BAQ Rate (1) X (2)	\$765,843	\$5,673,760
5. Total Cost If All Paid At Without Dependents BAQ Rate (1) X (3)	\$614,648	\$3,659,455
6. Cost Difference (4) - (5)	\$151,195	\$2,014,305
Total Monthly Cost, Officers Plus Enlisted		\$2,165,500
Total Annual Cost, Officers Plus Enlisted		\$25,986,000

<sup>1</sup> Headquarters, Department of Air Force, AF/DPW, May 75

<sup>2</sup> Average BAQ Rates for (a) Officer Grades O-1 to O-4  
(b) Enlisted Grades E-1 to E-5

# QUADRENNIAL REVIEW OF MILITARY COMPENSATION

## "SHORT TOUR" AREAS DEPENDENTS NOT AUTHORIZED<sup>1</sup> as of April 1, 1976

<u>LOCATION</u>	<u>PRESCRIBED TOUR LENGTH</u>
Clear, Fire Island and Murphy Dome Alaska	12
American Samoa	12
Antarctic Region	Indefinite
Ascension Island	12
Grand Bahama Island, San Salvador and Turks and Caicos, Bahamas	12
Fortaleza, Brazil	12
Stephenville, Canada	12
Corsica	18
Diego Garcia	12
Asmara, Harrar, Missaua and Isolated Areas of Ethiopia-Eritria	12
Reisenbach RRL, Germany	15
Soudha Bay Greece	12
Greenland	12
Hofn, Iceland	12
Shahroki Station, Iran	12

<sup>1</sup> DoD Dir. 1315.7, with two changes and a revision in coordination, "Rotation and Stabilization of Military Personnel Assignments." There also are authorized exceptions for other areas such as the 2d Infantry Division and other selected areas in Korea, where dependents are specifically not authorized and the service concerned has set the tour length at 12 months.



<u>LOCATION</u>	<u>PRESCRIBED TOUR LENGTH</u>
Piano di Corsi, Mt. Finale Ligure, Italy	18
Mt. Grappa, Mt. Torara, Naz Sciaves and Reggio, Zelo, Italy	15
Cima Gallina, Gambarie, Mt. Cimona, Mt. Limbara, Mt. Paganella, Italy	12
15 Isolated Stations, Japan	12
Wakanai, Japan	15 <sup>1</sup>
Johnston Island	12
Libya	12
Malaysia	12
Paracale, (Luzon) Balanga area, (Bataan); Laoag; Lubang; Mactor Is, Mindanao; and Wallace Air Station, Philippine Islands	12
Vieques Island, Puerto Rico	12
Kuma Shim, Ryukyu Islands	12
Decimomannu AB, Sardinia	12
Santiago, Spain	18
Balearic Islands and Gorremendi, Spain	15
Adamuz, Ciudad Real and Estaca Devares, Spain	12
Tainan AB, Taiwan	15
Isolated Areas of Taiwan	12
Trabzon, Turkey	15
Istanbul Dujarbakir, Derince, Iskenderon, Turkey	12

<sup>1</sup> Dependents are authorized when government quarters are available.

M-3

LOCATION

PRESCRIBED TOUR LENGTH

Wake Island

12

St. Lucia, West Indies

12

VARIABLE HOUSING ALLOWANCE

A Staff Research Paper

Prepared For

The Third Quadrennial Review

Of Military Compensation

27 September 1976

# QUADRENNIAL REVIEW OF MILITARY COMPENSATION

## VARIABLE HOUSING ALLOWANCE

### STAFF RESEARCH PAPER

#### Purpose

The purpose of this paper is to determine the desirability and feasibility of paying a variable housing allowance (VHA) to military personnel assigned within the continental United States. The paper presents data showing the variability of housing costs in the United States and presents several alternative ways of structuring a VHA to reduce this cost variability under a military pays and allowance system and a salary system.

#### Background

The House Appropriations Committee directed the Department of Defense to study the personnel and pay implications of implementing a military variable housing allowance (VHA).<sup>1</sup> Since the statutory Quadrennial Review of Military Compensation (QRMC) was about to begin, it was tasked to perform the study as part of its comprehensive review of the principles of military compensation. A contract was let with the Center for Naval Analyses (CNA), to investigate available housing cost data sources, housing cost variation throughout the continental

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<sup>1</sup> House Appropriations Committee Report Number 93-1477, November 19, 1974.



United States (CONUS), and assess the feasibility, on the basis of available data, of grouping installations by housing cost ranges which might serve as the basis for establishing a VHA in CONUS. This staff research paper is partially based on material from the CNA report<sup>1</sup> and is intended to serve as a basis for the report to the House Appropriations Committee.

Military personnel in the CONUS are provided government housing or an allowance in lieu thereof<sup>2</sup> to provide for housing on the local economy. Worldwide, 70% of the married members of the force and 13% of bachelors currently receive the allowance in lieu of government housing. Comparable figures for CONUS are not available.

Personnel of the same pay grade are paid the same Basic Allowance for Quarters (BAQ) rate without regard to the location of assignment. If housing costs experienced by military personnel vary widely by location throughout CONUS, those living in areas with high housing costs will serve at an economic disadvantage in comparison with other servicemen stationed in lower cost areas. Also, military personnel in many cases would experience significant reductions in their standard of living when transferred from a duty assignment in a low housing cost

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<sup>1</sup> The Feasibility of a Geographic Pay Supplement for CONUS Military Personnel, 10 September 1976, John T. Warner, Center for Naval Analyses.

<sup>2</sup> Members without dependents who are assigned to sea duty are quartered in ships and are not provided either housing or BAQ. When members without dependents are ordered on extended field duty, they are likewise quartered on the job.

area to one with high housing costs. Unlike most other American workers, military personnel have no choice in duty assignment. Military necessity, not cost of living, determines their assignment.

Based on data for recent fiscal years, on the average, 38.2% of the force, not counting accessions and separations, are moved annually.<sup>1</sup> Further, the availability of government quarters varies by location and service component.<sup>2</sup> Therefore, the service member can experience a large variation in housing costs over time if government quarters are not available to him at each duty station.

Military personnel frequently argue that housing costs vary widely from post to post and that it is not fair to require people to bear the full cost of housing in high cost areas. When a member stationed at a low housing cost area, such as Fort Polk, La., or Fort Sill, Ok, is reassigned to a high housing cost area, such as New York, Los Angeles, San Francisco or Homestead AFB in Florida, and is not provided government quarters, his disposable income is significantly decreased. Previous initiatives toward a VHA suggest that there is enough variability in housing costs across the nation to warrant an allowance to moderate that variability.

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<sup>1</sup> Army, Navy and Air Force, Permanent Change of Station Travel Justification of Estimates for FY 76 submitted to Congress Jan. 1975.

<sup>2</sup> Office of the Secretary of Defense, Office of Management and Budget, Military Housing Study, 1975.

### Previous Studies

Two previous studies have dealt with a variable housing allowance.

(1) In 1962, as part of the Defense Study of Military Compensation, the feasibility of paying a Variable Quarters Allowance was investigated. After analyzing data on rental costs paid by military personnel and noting the wide discrepancy in rental charges at different locations, a recommendation was made that a VHA be approved in principle, such a system being designed to compensate military personnel at bases where rental rates, on the average, exceed the service member's Basic Allowance for Quarters (BAQ). This recommendation was not, however, included in the OSD military pay legislative proposal to Congress in 1963.

(2) In 1969, the Department of the Navy proposed that a VHA be paid to military personnel assigned to areas in CONUS where the cost of housing exceeded the national average by at least 2.5% as determined from Federal Housing Administration (FHA) data. The estimated annual cost was approximately 60 million dollars. The Navy prepared a legislative proposal in January of 1970. The proposed legislation was staffed and studied in the other services and OMB during 1970 and 1971. In mid-1972 a decision was made by the Deputy Assistant Secretary of Defense, M&RA, not to submit the legislation to Congress. This decision was based on the fact that a VHA was not considered of high enough priority during the time that many other proposals related to

achieving and sustaining an all-volunteer force in a zero draft environment were being considered.

#### VHA in Overseas Areas

The concept of a variable housing allowance is already provided for in law dating back to 1946 for military members stationed outside of the CONUS. Section 405 of Title 37 U.S.C. provides for payment to these members of a Station Housing Allowance (SHA)<sup>1</sup> which consists of the difference between BAQ and local housing costs. SHA rates for each location are based on an annual survey (staggered throughout the year) completed by all off-post personnel. Personnel report their rent and utility costs, excluding telephone, as well as initial occupancy and termination costs. Initial occupancy and termination costs are prorated over the standard tour length for the location and are included because of characteristics unique to overseas locations. Initial occupancy costs include items such as light fixtures, wardrobes (where room closets aren't provided), plumbing fixtures, floor and window coverings not common to the United States and certain electrical items such as transformers and adapters. Command personnel review the reported costs and eliminate any nonrepresentative low or high figures. Experience indicates personnel accurately report their costs even

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<sup>1</sup> The Station Housing Allowance is customarily referred to simply as a housing allowance and abbreviated as HA. However, in this paper, it will be abbreviated as SHA to distinguish it from a variable housing allowance (VHA).



though they know the costs go into the determination of their SHA.<sup>1</sup> The SHA is determined as a percentage of BAQ (called a housing index) based on the pay grade weighted average percent by which housing costs exceed BAQ. A housing index is determined for officers and enlisted members at each location based on data from individuals drawing BAQ at the with dependents rate (except at locations where dependents are not authorized or where few married members are assigned) and is published in Appendix A of the Joint Travel Regulations (JTR). The index values range from 105% to 700% of BAQ in 5% increments. Five percent increments are considered sufficient to reflect significant changes in housing costs and have been in use since 1959. For each index value, a daily SHA is listed in Appendix B of the JTR for each officer and enlisted grade at the with and without dependents BAQ rate. For example, a housing index of 110% produces a SHA equal to 10% of the BAQ for the appropriate grade and dependency status. Sample pages from Appendix A and B of the JTR are included in Appendix A of this paper. The FY 77 President's Budget shows a SHA cost of \$90.3 million. Thus, members stationed outside CONUS and not provided with government quarters do not experience a decrease in disposable income when housing costs exceed the BAQ.

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<sup>1</sup> Telecon with Colonel W.E. Dyson, Per Diem Travel and Transportation Allowance Committee, 7 July 1976.

### Total "Geographical Pay Adjustments"

Prior studies and the Congressional tasking for this study are limited to what might be described as the equalization of housing costs. It may be argued that since cost variations across the country are related to all living costs the objective should be to equalize disposable income for military members in CONUS. The equalization mechanism might then be a single supplement to military equivalent salary -- an allowance to act as a "geographical pay adjustment" (GPA). If overall price indexes for all areas in which military installations are located were available, then a GPA based upon these indexes could be used to bring about equality across areas in the purchasing power of Regular Military Compensation (RMC). Such an adjustment might be considered a "first-best" solution to the problem of allowances to meet costs imposed by assignments. Since an overall price index for each area is not available, it may be possible to base a GPA on the available living cost data. It first must be determined whether a GPA based upon a specific commodity price index would eliminate, reduce, or increase the geographic variation in real income.

Analysis of the variation in various components of the Consumer Price Index, such as food, rent, clothing, medical and transportation, shows that the main contributor to the variation in the overall index is the housing component. This is true because (1) the geographic variation in housing costs is substantially larger than the geographic variation

in any other commodity index, and (2) housing has a larger share in the total budget than any other commodity.

Since the various commodity price indexes tend to move together, a GPA based on one of the commodity indexes would be a move towards equity as long as an adjustment is made only to the portion of income spent on the index commodity. If a GPA were to be based on a single index commodity, the "best" index commodity appears to be housing.

**Geographic** variation in housing costs appears to be the major contributor to the geographic variation in the overall price index. Thus it appears that the concept of a VHA, limited to housing costs, is a reasonable approach to the problem of living cost variations experienced by military personnel assigned to CONUS.

#### The Need for a VHA

The need for a VHA must be based upon a demonstration of significant military housing cost variation across the United States. In January of each year, the Navy collects military family owner and renter costs for all services' off-post personnel. This data will be discussed in more detail later. Average military family monthly housing cost (MHC) data for 118 CONUS installations are presented in Tables B-1, 2 and 3 of Appendix B.

On the average, military personnel spend about 49 percent more than their BAQ on housing. They spend an average of about 24.2 percent

of their RMC<sup>1</sup> on housing. However, there are substantial, even dramatic, differences in military housing costs across the country.

Table 1 presents for comparison purposes the weighted averages and the range of the ratio of MHC to BAQ and MHC to RMC for the 118 installations.

TABLE 1

RATIO AVERAGE AND RANGE OF MONTHLY HOUSING COST  
TO BASIC ALLOWANCE FOR QUARTERS, AND REGULAR  
MILITARY COMPENSATION

	Average		MHC/BAQ			MHC/RMC		
	BAQ	RMC	Average	Low	High	Average	Low	High
Officer	210	1600	1.68	1.13	2.17	.218	.148	.285
Enlisted	138	797	1.45	1.10	1.77	.251	.190	.307
All	148	906	1.49	1.12	1.81	.242	.182	.294

Table 2 compares the average BAQ received to the average housing expenditures. At no installation included in the NAVFAC survey does the average officer or enlisted member obtain housing for less than his

TABLE 2

AVERAGE BAQ, AVERAGE HOUSING COST AND  
THE RANGE OF HOUSING COST

	Average BAQ	MHC			
		Average	High	Low	Range
Officer	\$208	\$350	\$456(New York)	\$236(Ft. Polk)	\$220
Enlisted	138	200	245(Los AngAFS)	151(Ft. Wood)	94
All	148	220	267(Boston)	165(Ft. Polk)	102

<sup>1</sup> RMC is the rough equivalent of a civilian salary and includes basic pay, basic allowance for quarters (BAQ), basic allowance for subsistence (BAS) and the tax advantage which results from the nontaxability of BAQ and BAS.



BAQ. Officers spend between \$236 and \$456 per month for housing. Officers thus spent from 13% to 117% or \$28 to \$248 more than their BAQ on housing. An officer can thus experience a \$220 reduction in spendable income if reassigned from Ft. Polk, La., to New York City. For comparison purposes, the average officer spends about \$400 a month in San Diego, Calif., or \$192 over his average BAQ. Enlisted members spend between \$151 and \$245 for housing. Enlisted members thus spend from 10% to 77% or \$13 to \$107 more than their BAQ. For example, the average enlisted member is spending about \$210 a month in San Diego, Calif. An enlisted reassignment could mean a reduction in spendable income of \$94. These reductions would be even greater if the member moved from government quarters to off-post quarters, since the average BAQ for all personnel is \$148 or \$17 less than the average housing cost at the lowest cost installation.

This data clearly shows the need to consider some form of a VHA to more nearly equalize housing costs for service members in the CONUS. The large cost variation can significantly change the member's standard of living as a function of his assigned military duty location. Upon reassignment to a high cost area, the member not only spends more for housing, but he typically obtains housing of less "quality" since his fixed income doesn't allow him to spend a sufficient amount of money to obtain housing of comparable "quality" to that at his last duty station. The large housing cost variation is in addition to rapidly rising rents,

housing prices, interest rates and utility costs which further add to housing costs over time.

The Civilian Data Base Determining Housing Cost Variations in U.S.

To determine how much variation in housing costs there is at different locations in CONUS, several non-military sources of data on housing costs, both public and private, were investigated.

a. The public data from FHA similar to that used by the 1969 Navy proposal was used as a starting point. After analyzing the housing costs published by FHA, however, it was concluded that this data did not provide a good basis for establishing a VHA for several reasons:

(1) In August of 1974, the FHA mortgage limitation was raised from \$33,000 to \$45,000 on the mortgage of a home which would be insured by FHA -- a rather low ceiling. In 1973, FHA-guaranteed purchases represented only about 6% of the home purchase market. In addition, there are considerable differences between the typical house financed under the FHA program and those financed under conventional mortgages. In short, FHA financed home purchases are a small and unrepresentative segment of the market.

(2) Even if the FHA data were reliable as a source of housing costs, the fact that many military personnel are assigned to locations not covered by the FHA data on Standard Metropolitan Statistical Areas (SMSA) would make it inadequate as a basis for establishing a VHA.

(3) The FHA data covers only ownership housing costs. Since a

major portion of military personnel stationed in CONUS rent their housing, a more appropriate basis for establishing a VHA is rental costs or a combination of owner and rental costs.

b. The Bureau of the Census publishes detailed data on both rental and home ownership costs. The Census data does not cover many areas where military installations are located and the data is collected only once every ten years. Significant change has occurred in the housing market since the last Census of Housing was taken in 1970, and that change has not impacted uniformly across the United States. A responsive VHA system would probably need to be adjusted more often than every ten years.

c. A third possible source of housing and other living cost data is the Bureau of Labor Statistics. BLS publishes on a continuing basis, two regional series pertaining to price levels or living costs. The first series is a consumer price index based on expenditures for food, housing, apparel and upkeep, transportation and health and recreation which is constructed for 56 geographic areas. These area consumer price indexes are time price indexes which have as a base January 1967. The indexes indicate period to period price changes within a particular area and cannot be used to infer interarea variation in price levels. Each area index has a base period index of 100 for January 1967, but a January 1967 index of 100 in one area does not indicate the same level of prices as an index of 100 for another area. It is not possible to

infer how much interarea variation there is in prices from these indexes, and they could not be incorporated into construction of a VHA.

d. A second BLS data series, the Urban Family Standard Budgets, can be used to make inferences about interarea variation in living costs. The budget (nominal income) required to obtain "lower," "intermediate," and "higher" standards of living are computed yearly in Autumn for 38 CONUS metropolitan areas and 4 non-metropolitan areas. The total budget required to obtain each specified level of living in each area is decomposed into the following commodity categories: food, housing, transportation, clothing, personal care, medical care, and other items. For each geographic area, cost-of-living (COL) indexes at each level of living are computed for the total budget and each commodity category within the total budget by dividing the expenditures required in the given budget category by the national average expenditure for that category. This data series is inadequate because:

- (1) The commodity baskets are not held constant, in many cases, from area to area. Therefore, the indexes are COL and not price indexes. Using June 1974 CONUS force strength data, it is estimated that there are 262,000 personnel in the 38 metropolitan areas; only 20 percent of total CONUS personnel at that time.

- (2) If there is significant variation in living costs among the installations located in the non-metropolitan areas, the four regional non-metropolitan indexes could not be used as the basis for a VHA for



the 80 percent of personnel not located in the 38 metropolitan areas for which COL indexes are computed.

(3) There are many large metropolitan areas excluded which contain military personnel. Also, there is likely to be significant variation across areas in living costs within each of the four "non-metropolitan" areas. These indexes would not accurately reflect the living costs of substantial numbers of CONUS military personnel.

e. A study conducted in 1969 by the National Industrial Conference Board<sup>1</sup> looked into the feasibility of geographic pay adjustments for white collar workers employed by national companies (most of whom still pay a single salary to white collar workers regardless of location). The Family Budgets indexes, as well as all other data, were found inadequate for the same reasons as cited above. Indexes are not available for a substantial number of areas in which white collar workers are located.

f. Other sources of data on regional variation in prices were examined and found inadequate for the purposes of a VHA. The Federal Home Loan Bank Board computes average transaction prices of new and existing homes for 18 major U.S. cities on a monthly basis. The fact that these prices are for only 18 areas makes them inadequate for

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<sup>1</sup> The Impact of Geographic Differentials in Cost-of-Living within the United States on Exempt Compensation, Fox, H., The National Industrial Conference Board, New York, New York, December, 1969.

VHA purposes. A more comprehensive data source is the National Association of Home Builder's index of construction costs, which is constructed bi-monthly for approximately 400 geographic areas. The basic inadequacy of this index is that the land component of housing prices, which is likely to be one of the significant sources of geographic variation in housing costs, is not included. Also, since it is an index of construction costs of new housing, it does not reflect prices of existing housing.

Thus, the available housing cost indexes are not sufficient to support a VHA. Most of the available indexes do not address rental and owner housing and/or are established infrequently. The more current indexes are severely limited in their usefulness because of the large number of military installations which are not in areas covered by the survey. Many of the military installations are in quasi remote areas where data on the nearest city or statistical area would not be representative.

The only source of data currently available pertaining to military personnel owner and renter housing costs is contained in the annual survey conducted by the Naval Facilities Engineering Command.

The Military Data Base for Determining Housing Cost Variation in the U.S.

The Naval Facilities Engineering Command (NAVFAC) has Department of Defense responsibility to annually collect housing cost data for

military members residing off post at military installations. It uses a Family Housing Questionnaire, distributed at the end of January of each year, to obtain family housing expenditure data along with other housing data. NAVFAC surveys personnel with dependents (for convenience, "married personnel") at CONUS installations and obtains estimates, by rank, of average monthly housing expenditures. The expenditure data includes rent or mortgage payment, property taxes, utilities (excluding telephone) and average maintenance costs. The CONUS expenditure data doesn't include initial occupancy and termination costs similar to those collected overseas.

Only installations desiring new construction or leasing programs must conduct the NAVFAC survey. However, some surveys are required to revalidate prior surveys and some surveys are performed simply because the installation wishes to be surveyed. For the last 4 or 5 years these criteria have produced survey results for roughly 85% to 95% of the CONUS force. Since the minimum size of new construction projects is 100 units and the minimum size of a new leasing project is 25 units, the minimum size installation surveyed has roughly 500 people. The survey goes to a sufficiently large random sample of personnel at the installation so that statistically valid data is obtained on the availability of adequate off post quarters for each pay grade. To reflect local demand and local conditions, Navy surveys of installations where fleet units are home ported include personnel on sea duty who

are home ported in the CONUS. However, for personnel to actually be included in the survey their ship must be in port on the 31st of January when the survey is distributed.

The housing expenditure data collected in the annual NAVFAC survey are the only data currently available on prices paid for housing by military personnel on an installation-by-installation basis.

The data used in this paper was collected in January of 1975, and thus comparisons are made to Basic Allowance for Quarters (BAQ) rates in effect at that time (1 Oct. 74 rates). The 1975 NAVFAC data provides an adequate data base to describe average housing expenditures for all married personnel living off post at 118 CONUS installations.

Average housing **expenditures** for both owners and renters are combined for each installation. The fraction of personnel renting and buying at each installation is a function of the local housing market, and both groups are included to properly represent actually experienced off post housing costs. It can be argued that the government should not pay "investment" costs of home ownership, and that rental costs more properly reflect "true" costs of housing to the military member, but, it is a fact that the military member is a captive of the off post housing market where he is assigned. Thus, even though the member may wish to rent, he is forced to buy in many cases because adequate housing cannot be rented to meet the member's family needs in reasonable proximity to his duty location.



The question is then not whether owner costs should be included, but how owner costs should be included. The best way to include home ownership costs is to use the "fair market rental value" of the home. A rather good estimate of the rental value might be made by the owner since he is familiar with rental rates in his neighborhood and because he probably just recently investigated owner/renter costs in the process of choosing where he wished to live and whether he should rent or buy. A small study using professional rent appraisers would be necessary to determine how accurately owners can estimate rental values before such an approach could be incorporated into a VHA base. It is problematical whether such a procedure would be acceptable to the Congress even if the accuracy of member estimates could be demonstrated.

Ownership costs currently collected include the monthly mortgage payment, property taxes, and maintenance costs, but they do not include consideration of (1) income tax reductions which result from income tax laws structured to encourage home ownership, (2) the opportunity costs of forgone interest on home equity, (3) any capital gain and capital gain tax realized upon the sale of a home, (4) closing costs and loan points paid upon home purchase, and (5) realtor costs paid upon home sale. It is thus difficult to estimate whether the currently collected data understates or overstates true monthly ownership costs during occupancy. To avoid these issues, an estimate of the rental

value of owner-occupied homes, estimated by the owner or by professional rent appraisers could be used.

The average renter, owner and combined monthly costs along with the percent of off-post renters for families living off-post are shown in Table D-1 of Appendix D.

The intermediate and senior grade officer and enlisted members are more likely to be home owners than those in the junior grades; the rate increases with grade increases for both officer and enlisted members. Of those who live off-post, about 70% of officers and 20% of enlisted members own their homes. By comparison, U.S. families and primary individual home ownership ranges from 51% for those with \$5,000 income, to 62% for those with income of \$5,000 to \$14,999, to 81% for those with over \$15,000 income.<sup>1</sup> In 1975, the average officer RMC was \$19,000 and the average enlisted RMC was \$9,500 for the grades covered by the NAVFAC survey. Thus, officers and enlisted members living off-post have lower ownership percentages than civilians of comparable income. If military members living in government quarters,<sup>2</sup> i.e., "renting", were included in the calculations, the percentage of military homeowners would be significantly reduced.

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<sup>1</sup> Current Housing Reports Annual Housing Survey: 1973, Part C, Series H-150-73C, BLS/HUD United States Government Printing Office.

<sup>2</sup> About 37% of CONUS military families occupy government housing according to a November 1975 Navy Personnel Research and Development Center study title, "Department of Defense Family Housing Preference Survey."

Officer owners on the average pay \$90 per month more for housing than officer renters (\$385 versus \$295) and enlisted owners pay \$55 per month more than enlisted renters (\$245 versus \$190). Both groups pay more than their respective average BAQ (\$210 for officers and \$138 for enlisted members). Thus, a VHA appears warranted whether only renter costs or a combination of renter and owner costs are considered.

The NAVFAC data described above covers only married personnel. There is no comparable data available for single personnel living off post. A later section of the paper contains recommendations for gathering single data along with expanded family data as required to properly implement a VHA.

#### VHA Base

A VHA would be based on some reference, or base amount. A number of bases are potentially available. BAQ is an obvious base. It is historically intended to meet the costs of off-post housing. BAQ does not currently do so.<sup>1</sup>

Other bases could logically relate VHA to national average civilian monthly housing costs, or the national average of military monthly housing cost, particularly if it were to vary significantly from the civilian figure. A possible base is the average government housing cost, or the value of those quarters. It is evident that many of these

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<sup>1</sup>QRMC Staff Research Paper, "Quarters," 9 April 1976, as updated 24 September 1976.

alternative bases could be a new base for BAQ. Thus, the VHA plan costs developed in this paper should be viewed in the context of costs associated with changes in the reference base. As a point of interest, it is noted that the overseas housing allowance for Federal civilian employees is the average total housing costs at an overseas installation. Thus, the base for the Federal civilian living quarters allowance is zero dollars.

#### Housing Indexes

Variable housing allowance plans can be based on absolute dollar differences in monthly housing costs (MHC) or on percent differences in MHC in the form of a housing index.

Two different housing indexes can be used. The first index is a housing cost index (HCI), which characterizes housing costs at each installation as a multiple of the average CONUS military monthly housing costs. The second index is a housing allowance index (HAI) which characterizes housing costs at each installation as a multiple of the average basic allowance for quarters (BAQ) received by military members living off-post. It will later be shown that the cost of a CONUS VHA is independent of the choice of index used to group installations.

##### a. Housing Cost Index

To construct a housing cost index for each installation, a single measure of monthly housing cost (MHC) was developed at each installation. Measures of MHC were computed for officers and enlisted personnel



separately and then combined into a composite MHC figure. The officer MHC was computed by using the average MHC of officers in pay grades O-1 through O-6 weighted in proportion to the number of officers in each pay grade stationed in CONUS. The enlisted MHC was constructed similarly using enlisted pay grades E-3 through E-8. Pay grades E-1, E-2 and E-9 were not adequately represented in the **sample and therefore** were excluded from the calculations. These excluded grades represented only 9 percent of all enlisted married personnel and therefore their exclusion introduces insignificant errors. The composite MHC was calculated by combining officer and enlisted MHCs weighted by the percentage of CONUS personnel in the pay grades studied in these two groups.

Constant grade weights were used in constructing the MHC at the different installations to insure that the only source of variation from installation to installation is the variation of housing costs themselves. If variable weights were used (where the weights reflect the actual force distribution at each installation), the weights themselves would be an added source of variation and therefore would make inferences from the computed numbers less meaningful.

Housing cost indexes were then calculated as the ratio of the weighted average MHC of each installation to the CONUS-wide weighted average MHC. Table B-1 in Appendix B shows the composite MHCs and the MHC indexes for each of the 118 CONUS installations ranked by MHC from highest to lowest. It also displays the ratio of monthly

housing cost to the BAQ and the ratio of monthly housing cost to RMC.

For all personnel, the MHC index ranges from .75 (Ft. Polk, La.) to 1.21 (Boston, Mass.). Conceptually, these indexes would be indexes of prices of housing if the quantity and quality of housing were held constant from area to area. Since there is no attempt to control for these factors in the NAVFAC survey, it is not clear whether these indexes indicate interarea variation in price, interarea variation in the quantity and/or quality of housing or some combination of the two.

It is reasonable to assume, however, that housing prices and quantity and quality as experienced by military personnel tend to be negatively related. That is, military personnel with a fixed income assigned to high priced areas will tend to acquire housing which is either smaller or has less desirable attributes than the housing acquired by personnel assigned to low priced areas. Thus, as housing costs go up, personnel will not absorb all of the housing dollar cost increase from other expenditure categories, such as food, transportation, or clothing, but will in part also accept a "lesser house" as part of the lower standard of living experienced in the high housing cost area. Based on this assumption, the range of expenditure indexes constructed with the NAVFAC data may be a lower limit on the range of pure price indexes for these areas. Interarea variation in housing prices may be somewhat larger than those estimated from the NAVFAC Survey expenditure data.

Military personnel living in government quarters do not experience these housing cost variations as they are reassigned provided they continue to occupy government quarters. However, there is wide variance in the value of housing received,<sup>1</sup> and thus the standard of living varies substantially.

With MHC indexes ranging from 0.6745 to 1.3021, the feasibility of administering a VHA can depend in part upon the ability to reduce a large number of indexes, as represented by the 118 in the sample, to some limited number of VHA groups that are both reasonably accurate and also manageable.

Using the MHC indexes, it is possible to group installations for the purpose of implementing a VHA. Installations should probably be grouped into a relatively small number of VHA categories or zones, rather than making a different VHA adjustment at each CONUS installation. There are several reasons for this. First, the survey data which contains normal **sampling** errors probably isn't accurate enough to justify exact translation of every index into an entitlement. Even though the average expenditure at one post might be slightly higher or lower than another, use of the same rate at each post is justified. Second, a plan with a relatively small number of categories may be easier to administer. Third, and more subjectively, a plan with only a small number of

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<sup>1</sup> OSD-OMB Housing Study Report (Draft), 31 October 1975.

possible VHA adjustments to BAQ may be more easily comprehended and therefore more acceptable to military personnel, the Congress and the public.

Several considerations influence the most appropriate number of VHA categories. First, the fewer categories there are, the administratively simpler the plan will be, though with the use of computers this is a minor advantage. Second, categories should be established on the basis of what are felt to be significant or real differences in MHC. Too narrow a range on the categories will result in different VHAs being paid at different installations, even though the differences in MHC are "unimportant." On the other hand, the ranges should not be so broad that installations with very dissimilar housing costs are placed in the same category. Judgments need to be made as to what constitutes an "important" difference in housing costs. Third, the fewer the categories there are, the greater will be the likelihood than an installation will fall into the category in which it "really" belongs. That is, the chance that sampling errors will result in an installation being misplaced is reduced.

These criteria suggest that the number of categories should be as small as possible consistent with judgment as to what constitutes "important" changes in housing costs. Three alternative VHA categorization plans are presented in Tables 3, 4, and 5. These plans are examples of how the 118 installations could be grouped into VHA



TABLE 3

**FIVE PERCENT VHA CATEGORIZATION PLAN**  
**Installations are Grouped on the Basis of Five Percent**  
**Increments in MHC Index**

Category	MHC Index	Percent of Personnel	Monthly Housing Cost					
			All Personnel		Enlisted		Officer	
			Range	Difference	Range	Difference	Range	Difference
1	120 & above	1.19	\$265 & above	\$2	\$242 & above	\$2	\$427 & above	\$29
2	115-119	3.94	254-262	8	231-240	9	403-413	10
3	110-114	6.35	243-253	10	220-229	9	386-402	16
4	105-109	19.83	235-242	7	210-220	10	368-384	16
5	100-104	18.29	221-231	10	202-210	8	351-365	14
6	95-99	11.03	209-220	11	193-200	7	337-348	11
7	90-95	16.37	199-208	9	180-190	10	316-332	16
8	85-89	12.49	187-198	11	171-179	8	303-315	12
9	80-84	7.23	178-186	8	160-170	10	290-296	6
10	75-79	3.27	177 & below	12	156 & below	5	279 & below	43
Average range, excludes top and bottom categories				\$ 9.25		\$8.88		\$12.63
Average BAQ			\$148		\$138		\$210	

TABLE 4

## TEN PERCENT VHA CATEGORIZATION PLAN

Installations are Grouped on the Basis of Ten Percent  
Increments in MHC Index

Category	MHC Index	Percent of Personnel	Monthly Housing Cost					
			All Personnel		Enlisted		Officer	
			Range	Difference	Range	Difference	Range	Difference
1	120 & above	1.19	\$265 & above	\$2	\$242 & above	\$3	\$427 & above	\$29
2	110-119	10.30	243-262	19	220-240	20	386-413	27
3	100-109	38.12	221-241	20	202-220	18	351-384	33
4	90-99	27.40	199-220	21	180-200	20	316-348	32
5	80-89	19.72	178-198	20	160-179	19	290-315	25
6	79 & below	3.72	177 & below	12	156 & below	5	279 & below	43
Average range, excludes top and bottom categories				\$20.00		\$19.25		\$29.25
Average BAQ			\$148		\$138		\$210	

TABLE 5

FIFTEEN PERCENT VHA PLAN

Installations are Grouped on the Basis of Fifteen Percent  
Increments in MHC Index

Category	MHC Index	Percent of Personnel	Monthly Housing Cost					
			All Personnel		Enlisted		Officer	
			Range	Difference	Range	Difference	Range	Difference
1	115 & above	5.13	\$253 & above	\$14	\$231 & above	\$14	\$403 & above	\$53
2	100-114	44.48	221-252	31	202-229	27	351-402	51
3	85-99	39.89	187-220	33	171-200	29	303-348	45
4	84 & below	10.50	186 & below	21	170 & below	19	296 & below	60
Average range, excludes top and bottom categories				\$32		\$28		\$48
Average BAQ			\$148		\$138		\$210	



categories. If a VHA were adopted, all installations not included in the groupings based on 1975 NAVFAC survey data would also have to be included. The proposed groupings are based on the combined officer and enlisted data in Table B-1 of Appendix B. The officer and enlisted installation MHC rankings were found to be highly correlated. Thus separate grouping plans are not required. This eliminates the need to explain to members why a certain installation would have a different VHA grouping for officers and for enlisted personnel. However, as shown later, the VHA at each installation may differ for officer and enlisted members.

The three plans are based on 5 percent, 10 percent and 15 percent increments in the monthly housing cost (MHC) index. The tables show the number of VHA categories generated by each plan, the range of the MHC index and of the MHC in each category, and the percentage of CONUS personnel who are estimated to fall in each VHA category based on the 118 installations in the sample. Since the 118 installations represent about 74% of the CONUS personnel, inclusion of the other 26% would not be expected to alter the percentages.

The range of MHC within each of the VHA categories is about \$10 in the 5 percent plan, \$20 in the 10 percent plan, and \$30 in the 15 percent plan.

A plan based upon 5 percent changes in the MHC index is considered too narrow. On average, only a \$5 change would result in a



change of VHA category. Also, a \$10 change in a VHA is likely to be viewed by most military personnel as an insignificant change in housing costs. There are 10 VHA categories in this five percent plan and some installations are likely to be "misplaced" (i. e. , be in categories other than the one in which they should truly be if MHC were known without error).

In plans based upon 10 percent and 15 percent changes in the MHC index the number of categories is reasonably small, 6 in the former case and 4 in the latter case. A rough categorization, based on these percentages, of the major installations in CONUS is presented in Appendix C. The dollar range of housing costs in each is sufficiently broad, \$20 and \$30, that the likelihood of "misplacing" installations is small. An installation's MHC would have to change by relatively significant amounts of \$10 or \$15, on average, for it to move from one category to another. Smaller changes in MHC would not induce movement. Thus, the ranges in both plans appear to reflect "important" changes in housing costs. However, the \$28 difference between enlisted categories, in the 15 percent plan represents roughly 20% of the average enlisted BAQ. This is likely to be perceived as a significant and noticeable change in housing costs and also appears to be excessively large.

A VHA category plan based on 10 percent increments produces average enlisted and officer differences between categories of approximately \$20 and \$30. The 15 percent plan produces \$30 and \$50 enlisted

and officer differences. On balance, the 10 percent plan producing 6 VHA categories, with a category range of \$20 for enlisted and \$30 for officers, appears to be a good compromise between the number of categories and the average differences between categories in both the officer and enlisted groups.

b. Housing Allowance Index

The housing allowance (HA) index is the ratio of monthly housing costs and average BAQ expressed as a percentage of BAQ. This is the index that is used for the overseas SHA. The HA index is rounded to the nearest 5%. The tables in Appendix B present the ratio of MHC to BAQ for each of the 118 CONUS installations in the study. This ratio times 100 yields the HA index. The officer HA index ranges from 115% to 215% and the enlisted HA index ranges from 110% to 175%. Since the HA index is rounded to the nearest 5%, this method of grouping installations will produce about 25 categories.

Taxability of a VHA

A VHA should be treated as an allowance paid to individuals for cost reimbursement over and above some selected housing cost base. Similar military and Federal civilian allowances are not taxed. The military overseas housing allowance (HA) and cost of living allowance (COLA) are not taxable. The Federal civilian overseas living quarters allowance (like

HA) and post allowance (like COLA) are likewise not taxable. Thus, the VHA should not be taxable.

#### VHA Plans Based on Current BAQ

Two methods of structuring a VHA under a pays and allowance system are the Housing Cost Index Method and the Housing Allowance Index Method using the current BAQ as the starting base. This base follows the historical intent of BAQ to pay for off-post housing costs when government quarters are unavailable. The overseas SHA uses BAQ as the base so this is a logical base to consider first. The SHA payment is determined as the amount necessary to make up the difference between BAQ and average officer and enlisted off-post housing costs.

The first method of structuring a CONUS VHA is the HCI method grouping installations in VHA categories as previously described. This will be called Plan PA-1.

BAQ multipliers (MHC index-1) would be used to produce the VHA in each installation category. These multipliers are shown in Tables D-2 and D-3 of Appendix D. Because officer housing costs exceed BAQ by greater margins than is the case for enlisted personnel, officer multipliers are larger than the enlisted multipliers. In addition, these tables show that a larger percentage of officers than enlisted are assigned to installations in higher housing cost categories.

The BAQ multipliers applied to the 1 October 1974 with dependents BAQ rates produce the grade by grade with dependents allowance amount.



The most recent national data is presented later. The grade by grade VHAs for the October 1974 BAQ rates are shown in Table 6 for the ten percent categorization plan.

This VHA Plan PA-1 sets VHA so that the sum of BAQ and VHA equals the average monthly cost being experienced in each VHA category. Average VHA adjustment factors, representing the weighted officer and enlisted average over all of the categories, were calculated and found to be almost identical for the 5, 10 and 15 percent categorization plans. The cost of a VHA is thus not dependent on the categorization plan selected, so only one VHA adjustment factor is used to estimate total plan cost.

The VHA adjustment factor multiplied by the average officer and enlisted BAQ, yields the average VHA for each group. To estimate the total VHA plan cost, the officer and enlisted average VHAs are multiplied by 12 to convert to an annual cost, by CONUS strength figures for officers and enlisted personnel, by the percent of officers and enlisted personnel who are married, and then by the percent of married officers and enlisted personnel currently drawing cash BAQ, to yield the annual cost of the plan.

This yields an annual married CONUS VHA cost of \$213 M and an annual enlisted cost of \$363 M for a total married CONUS VHA cost of \$576 M. A summary of the above procedure is presented in Table 7.

These estimates are based on 1 October 1974 BAQ rates and the



TABLE 6  
VHA PLAN PA-1

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MONTHLY VHA AMOUNTS FOR THE TEN  
PERCENT CATEGORIZATION PLAN

Grade	With Dependents BAQ <sup>1</sup>	Installation Category					
		1	2	3	4	5	6
O-10, 9, 8, 7	304	322	268	237	164	143	73
O-6	273	289	240	213	147	128	66
O-5	252	267	222	197	136	118	60
O-4	227	241	200	177	123	107	54
O-3	206	218	181	161	111	97	49
O-2	185	196	163	144	100	87	44
O-1	149	158	115	116	80	70	36
E-9	194	142	128	99	72	45	21
E-8	182	133	120	93	67	42	20
E-7	170	124	112	87	63	39	19
E-6	158	115	104	81	58	36	17
E-5	146	107	96	74	54	34	16
E-4	128	93	84	65	47	29	14
E-3, 2, 1	111	81	73	57	41	26	12

<sup>1</sup> 1 Oct. 1974 rates.

TABLE 7

## VHA PLAN PA-1

Cost of Married Component of CONUS VHA  
(October 1974 Rates)

	<u>Officers</u>	<u>Enlisted</u>
Average BAQ	\$ 209.60	\$ 137.95
Average Adjustment Factor	.67	.41
Average VHA	\$ 141	\$ 57
Average Annual VHA	1692	\$ 684
June 75 CONUS Strength	232,202	1,337,128
Worldwide Percent of Personnel Married	80.1	52.6
Worldwide Percent of Married Receiving BAQ	67.8	75.5
Total Married CONUS VHA Cost	\$213 M	\$ 363 M

January 1975 NAVFAC data available at the time that the CNA study was conducted. Very recently, the January 1976 NAVFAC data became available. A comparison of 1975 and 1976 data shows that while BAQ and RMC went up by 5%, MHC went up approximately 8% (7% for enlisted and 11% officers). This had the effect of making MHC a greater multiple of BAQ in 1976 than in 1975: 1.79 vs. 1.69 for officers and 1.48 vs. 1.45 for enlisted members. (Detailed comparisons are in Tables D-4 and D-5 in Appendix D.) Thus, based on October 1975 BAQ rates a VHA would cost roughly 15% more than the estimates in this paper. An accurate VHA cost estimate would require significant recalculations in the CNA study. Since they are not essential to evaluation of the VHA issue, this paper was not delayed for that purpose. This large increase results from a 5% increase in average BAQ (from \$210 to \$220 for officers) and an approximate overall 8% increase in MHC (from \$354 to \$394 for officers). Thus, the average officer VHA would go from \$144 to \$174, a 21% increase. The average enlisted VHA would go from \$62 to \$69, an 11% increase. The combined officer and enlisted increase is 15%. The large VHA percentage increase thus results from the increasing difference between BAQ and housing costs.

The second method of structuring a CONUS VHA is the HAI method based on the Housing Allowance Indexes in Appendix B. It is identical to the system used for the overseas SHA. This will be called VHA Plan PA-2. A separate officer and enlisted HA index rounded to the nearest

5% would be established for each installation. These installation indexes would be used along with existing HA tables (see previous description of overseas SHA and sample HA table page in Appendix A) to determine the VHA amount to be paid to each individual. Since the officer HA index ranges from 115% to 215% and the enlisted HA index ranges from 110% to 175%, the resulting officer VHAs would range from 15% to 115% of BAQ, while the enlisted VHAs would range from 10% to 75% of BAQ. Since the Joint Uniform Military Pay System (JUMPS) currently processes SHA payments, only minor system changes would be necessary to accommodate this form of a CONUS VHA.

The cost of CONUS VHA Plan PA-2 is almost identical to the cost of a Plan PA-1. The average officer and enlisted adjustment factors are 0.68 and 0.42 respectively, so the average VHAs are 68% of \$210, average married officer BAQ, or \$143 for officers, and 42% of \$138, average married enlisted BAQ, or \$58 for enlisted personnel. This produces an annual married VHA officer cost of \$208 M and an annual married enlisted VHA cost of \$370 M for a total married cost of \$578 M.

#### Reducing the Cost of a BAQ-based VHA Plan

The first two VHA plans presented might be characterized as "full coverage" plans in the sense that they make up the entire shortfall between current BAQ levels and housing costs. VHA plans could be implemented to lower VHA costs. Such a plan (PA-3) would pay each individual some specified percentage of the VHA he would receive under the "full coverage" plans PA-1 or PA-2. For example, the HA-Index



method (PA-2) is estimated to cost \$578 M. If it was determined that only about \$400 M should be made available, then VHA could be set to pay that percentage -- in this example 70% -- of the full VHA. This plan would pay a VHA to everyone, but in an arbitrarily reduced amount.

#### VHA Plans Having a Base Other than Current BAQ

Current levels of BAQ bear little relationship to the costs of housing the allowance is intended to procure.<sup>1</sup> Other VHA reference bases can be used, many of which could potentially be the BAQ rate in revised military compensation systems.

a. A VHA plan could pay a VHA only to personnel at installations whose MHC exceeds the average MHC of the 10 installations with the lowest MHCs, (Plan PA-4). The VHA payment would be the amount necessary to make up the difference between that base value and the average installation MHC. These base values are \$284 for officers and \$161 for enlisted members. This plan produces a married VHA cost of \$351 M.

b. Another VHA plan could use a base equal to the average CONUS installation MHC (Plan PA-5). This plan assumes that at some time in the future, BAQ would be set equal to average off-post housing costs. The base values are \$354 for officers and \$200 for enlisted members. This plan yields a total married VHA cost of \$67.4 million.

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<sup>1</sup> QRC Staff Research Paper, "Quarters," 9 April 1976, as updated 24 September 1976.

To illustrate how an installation (an installation rather than an installation grouping is used for simplicity) VHA for a specific grade would be determined, an enlisted E-5 at Lowry AFB, Colorado, is considered. Lowry AFB has an enlisted MHC of \$226 in comparison to the national average enlisted MHC of \$200. Thus, the enlisted VHA at Lowry AFB would be  $(226-200)/200$  or 13% of the national average MHC. Assuming the national average MHC for an E-5 is \$150, then the E-5 at Lowry AFB would receive a VHA equal to 13% of \$150 or \$19.50. Similar calculations would be performed for each officer and enlisted grade for each group of installations for any selected base value.

c. Another possible base for a VHA is the government cost of providing on-post quarters (Plan PA-6). Estimated costs of providing government family quarters are shown in Table 8.

Table 8

Monthly Government Cost to Provide  
Family Quarters<sup>1</sup>

<u>Grade</u>	<u>Cost</u>	<u>Grade</u>	<u>Cost</u>
O-6	\$358.50	E-8	\$277.80
O-5	321.60	E-7	277.80
O-4	320.10	E-6	255.60
O-3	240.30	E-5	233.70
O-2	217.50	E-4	211.80
O-1	210.00	E-3	206.10
Officer		Enlisted	
Weighted Avg.	265.59	Weighted Avg.	229.36
Weighted Avg. of all Grades Shown	234.29		

<sup>1</sup> QRM C Staff Research Paper, "Quarters," 9 April 1976, as updated 24 September 1976.

The average officer government family quarters cost of \$266 is less than the MHC at all 118 installations studied except Ft. Polk, La., which has an officer MHC of \$236. The analogous enlisted figure of \$229 on the other hand is exceeded at only 11 of the 118 installations studied. The average officer MHC at installations exceeding the quarters base of \$266 is \$455. The average enlisted MHC at installations exceeding the quarters base amount of \$229 is \$234. This average officer VHA of \$89 (\$355-\$266) would be paid to 99.56% of the CONUS married officer force and the average enlisted VHA of \$5 (\$234-\$229) would be paid to 6.13% of the CONUS married enlisted force. This plan produces an officer cost of \$134 M and an enlisted cost of \$2 M for a total CONUS married cost of \$136 M.

d. Another alternate base choice is the national average civilian MHC for civilians having similar salaries (Plan PA-7).

There are two data sources which provide civilian housing cost data. The 1970 Census provides estimates of the ratio of housing costs to family income for homeowners.<sup>1</sup> A 1973 Census survey provides estimates of the ratio of rental expenditures to family income.<sup>2</sup> Table 9 shows the 1970 Census findings for homeowners while Table 10 shows the findings for renters. Tables 9 and 10 represent median national United

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<sup>1</sup> 1970 Census of Housing, Vol. V., Residential Finance, Table 14.

<sup>2</sup> Current Housing Reports Annual Housing Survey: 1973, Part C, Series H-150-73C, BLS/HUD, United States Government Printing Office.



States data which covers all age groups, all family sizes (including 1 person families) and all geographical locations. Data in tabled form to determine housing expenditures for U.S. civilian families having age, income, family size and location characteristics similar to the military population are not currently available. In September 1976, the Census Bureau will have available a computer data tape which includes income data for each family member along with housing cost data. It will also include data on age and family size.

While the bounds on the income classes are not the same in Tables 9 and 10, a comparison of income classes where the bounds overlap indicates that homeowners spend a slightly higher fraction of income on housing than do renters. Generally speaking, the difference appears to be less than 1 percent in the lower income classes, but is somewhat larger (1-2 percent) in the higher income classes.

TABLE 9

SELECTED MEDIAN HOUSING COSTS AS A PERCENT OF INCOME,  
HOMEOWNERS<sup>1</sup>

<u>Income Class</u>	<u>Percent</u>
2,000 - 3,999	45
4,000 - 5,999	31
6,000 - 7,999	24
8,000 - 9,999	20
10,000 - 12,499	18
12,500 - 14,999	16
15,000 - 19,999	14
20,000 - 24,999	13
25,000 and over	11

<sup>1</sup> Selected Housing Costs = mortgage payments + utilities + insurance  
+ real estate taxes.



TABLE 10

MEDIAN RENTAL EXPENDITURES AS A PERCENT OF INCOME<sup>1</sup>

<u>Income Class</u>	<u>Percent</u>
3,000 - 4,999	32.4
5,000 - 6,999	24.4
7,000 - 9,999	19.5
10,000 - 14,999	15.3
15,000 - 24,999	11.3
25,000 and over	9.6

<sup>1</sup> Rental expenditures include utilities payments.

Table 11 presents MHC as a percent of RMC along with data from Tables 9 and 10 and Table D-6 of Appendix D. Military personnel are compared with comparable income classes of civilians in this table. Military family income data represents the results of a special IRS sample of 1974 military member income tax returns. Data for married military members is used to provide the best possible military to civilian comparison. The civilian data includes one person families, which cannot be removed from the tabled data. This introduces some error, but it is considered small in comparison to the overall military/civilian differences. The data in Table 11 show that military personnel spend more on housing than civilians of comparable income classes. Such a finding might be expected. Military personnel are moved more frequently than civilians,<sup>1</sup> and are less able to lock themselves into long-term, fixed-rental contracts or mortgage

<sup>1</sup> QRM Staff Research Paper, "The Military Factor," 2 January 1976, updated 2 September 1976.

payments and their MHCs will tend to more quickly reflect inflationary increases. Also in recent years, military personnel have purchased or rented homes during a time when housing costs and interest rates have increased sharply. Thus, this finding has substantial logical appeal.

TABLE 11

MONTHLY HOUSING COSTS AS A PERCENT OF FAMILY INCOME,  
MARRIED MILITARY PERSONNEL AND CIVILIANS OF  
COMPARABLE INCOME CLASSES, CY 1974

Pay Grade	Military Personnel MHC as % of RMC	Housing Costs as a Percent of Family Income			
		Rental Percent		Homeowner Percent	
		Civilian	Military	Civilian	Military
06	18.7	9.6	14.5	11	17.8
05	21.4	9.6	16.3	11	19.7
04	23.1	11.3	17.0	13	21.4
03	23.6	11.3	16.8	14	22.5
02	23.9	11.3	17.2	14	23.2
01	26.7	15.3	19.3	16	27.4
All Officers	22.9	11.3	16.8	13	21.9
E8	23.8	11.3	19.4	14	21.5
E7	24.9	15.3	19.4	16	22.6
E6	26.6	15.3	20.3	16	25.0
E5	26.8	15.3	19.7	18	26.1
E4	27.0	15.3	19.9	18	26.9
E3	28.7	19.5	21.2	20	27.6
All Enlisted	26.8	15.3	20.0	18	25.8
Total	25.9	15.3	19.3	18	24.9

The above comparison is based on family income because civilian owner and renter data are currently only available for family income.

Using some rough approximations, it is possible to get a general

idea of a VHA based upon civilian family housing costs. Keep in mind that the civilian data represents all age and income groups. It's possible to calculate a civilian MHC base using the married officer and enlisted family income from Table D-6 of Appendix D along with equivalent values for the simple average of the civilian family renter and homeowner percentages. These values are shown in Table 12.

TABLE 12

Monthly Married Officer and Enlisted VHA Bases  
Derived from Civilian Housing Expenditures

	<u>Officers</u>	<u>Enlisted</u>
Average RMC	\$1545	\$745
Average Military Family Income	\$1756	\$949
Percent of RMC	114%	127%
Civilian Average Percent of Family Income for Housing <sup>1</sup>	12.15%	16.65%
Average Civilian MHC for Income Equal to Avg Military Family Income	\$ 213	\$158
Average Military MHC <sup>2</sup>	\$ 354	\$200
Average BAO <sup>2</sup>	\$ 210	\$138

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<sup>1</sup> Average of civilian renter and homeowner percentages.

<sup>2</sup> For comparison purposes, from Table D-4 of Appendix D.

Since civilians spend a smaller percentage of their income on housing than does the military, the civilian MHC bases of \$213 for officers and \$158 for enlisted personnel are less than the respective average military MHCs. Using these bases results in an average officer



VHA of \$141 and an average enlisted VHA of \$42. The total officer VHA cost would be \$213 M and the total enlisted VHA cost would be \$258 M producing a total married CONUS VHA cost of \$471 M.

Note that the civilian MHC values above are based on family income. It can be argued that it is not proper to base a military allowance to individuals who are predominantly heads of households on family income, income over which the military has no control. Table 12 shows officer and enlisted family income to be 114% and 127% of the respective RMC values. The enlisted percentage of 127% suggests a rather large number of second jobs and/or working wives. If RMC were used as the income, then the civilian MHC base would be even smaller resulting in higher total VHA costs. Because of the data deficiencies relating to age and head of household income, a VHA based on civilian MHC should probably not be seriously considered unless analysis of the September 1976 Census Bureau survey shows that useable data analogous to RMC is available.

One set of civilian housing data does exist. The State Department collects Washington, D. C., General Schedule employee expenditure data along with other cost of living data to assist in establishing certain government civilian overseas housing and COLA pays. Table 13 shows owner and renter costs for married male employees.



TABLE 13

General Schedule Employee Housing Costs, Washington, D.C.<sup>1</sup>

GS Grade	1 Oct 1974 Average Salary	Feb 1975 Average Rent	Rent as % of Salary	Feb 1975 Average Ownership Cost	Ownership Cost as % of Salary
1-5	8,075	2,471	30.6%	3,971	49.1%
6-7	11,460	2,685	23.4	4,007	34.9
8-9	14,258	3,122	21.8	3,890	27.2
10-11	17,356	3,110	17.9	4,138	23.8
12	20,757	3,424	16.4	4,967	23.9
13	24,637	3,736	15.1	4,940	20.0
14	28,941	3,722	12.8	5,267	18.1
15 &	36,000	4,337	12.0	5,762	16.0

Table 14 shows the same data for military families in Washington, D.C. (Washington Naval Complex, Army Military District of Washington, Walter Reed Army Hospital, Ft. Belvoir, Bolling AFB and Andrew AFB). The costs include the same items as listed for General Schedule employees except that owner capital costs are represented by the owner monthly mortgage principal and interest payment.

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<sup>1</sup> Costs include rent, utilities, taxes, repairs, insurance and owner capital costs equal to the average home purchase price plus cost of improvements multiplied by an interest rate equal to the average mortgage interest rate.

TABLE 14

Military Housing Costs, Washington, D. C.

Grade	Married, All Cash 1 Oct 1974 RMC	Jan 1975 Rent	Rent as % of RMC	Jan 1975 Ownership Costs	Ownership Cost as % of RMC
E-3	7,589	2,328	30.6%	-	-
E-4	8,343	2,352	28.1	-	-
E-5	9,730	2,736	28.1	3,804	39.0%
E-6	11,516	3,120	27.0	4,284	37.2
E-7	13,355	3,468	25.9	4,380	32.7
E-8	15,464	3,912	25.2	4,680	30.2
E-9	18,138	3,876	21.3	4,644	25.6
O-1	10,972	2,808	25.5	4,692	42.7
O-2	14,776	3,264	22.0	4,728	31.9
O-3	18,370	3,888	21.1	5,364	29.1
O-4	21,888	4,968	22.6	6,048	27.6
O-5	26,592	5,292	19.9	6,396	24.0
O-6	32,530	5,388	16.5	6,372	19.5

A comparison of Tables 13 and 14 shows that in the Washington, D. C., area military renters pay from 3 to 6% more of the salary for rent than do General Schedule renters of similar income. The same percentage difference exists for owners. When these percentages are translated into annual dollar differences, the military member pays from \$200 to \$1,500 more for housing each year out of similar incomes. These differences are consistent with national differences previously noted.

Table 15 illustrates the estimated costs for VHA plans PA-4, 5, 6 and 7.

TABLE 15

Estimated Cost of Married Component of VHA Plan,  
Payments to Personnel at Installations with MHC  
Exceeding Specified Base Values

<u>VHA Base</u>	<u>Base Values</u>		<u>Percent Eligible</u>		<u>Average VHA</u>		<u>\$ Cost, Millions</u>		
	<u>Off</u>	<u>Enl</u>	<u>Off</u>	<u>Enl</u>	<u>Off</u>	<u>Enl</u>	<u>Off</u>	<u>Enl</u>	<u>Total</u>
Avg of Lowest 10 Installation MHCs (PA-4)	284	161	98.0	95.8	70	39	102	249	351
Avg CONUS Mili- tary MHC (PA-5)	254	200	48.1	46.6	37	14	25.8	41.6	67.4
Avg Cost of Government Quarters (PA-6)	267	230	99.5	6.1	88	4	133	1.6	136.
Avg Civilian MHC (PA-7)	213	158	100	96.4	141	42	213	258	471

VHA Under s Salary System of Military Pay

The VHA discussion to this point has been based on a military pays and allowance system. Under a salary system, military RMC would be replaced by a salary. No portion of the salary like the current BAQ would be immediately identifiable as being intended for housing expenditures. Thus, the first three plans, PA-1, 2 and 3, which use the BAQ as the VHA base, could not be used under a salary system. However, all other VHA plans are equally usable under a salary system. The VHA rates, however, could no longer be expressed as a multiple of BAQ. The VHA rates would simply be expressed as absolute dollar amounts and if desired, they could also be presented as multiples of the selected base.

### Incorporating Single Members into the VHA Plans

The conceptual VHA plans developed to this point have been based on consideration of members with dependents only, and depend on availability of data on MHC for each grade at each installation. As noted earlier in this paper, there is almost no data on the MHC of off-post single members.

The current overseas SHA system contains rates for members with and without dependents. Overseas, all personnel fill out the housing cost form. Thus, single and married housing costs as a multiple of the current without and with dependents BAQ rates are known. However, the married member housing information is primarily used to determine the appropriate installation housing allowance index. The resulting housing index is then used along with the BAQ table to develop installation SHA rates for those with and without dependents. This same procedure could be used for a CONUS VHA using a BAQ base. The VHA plans based on VHA bases other than BAQ would depend upon accurate single housing data so the VHA would properly reflect the CONUS single housing cost variability. Thus, additional military housing cost data would have to be collected in the CONUS to implement a VHA.

However, it is possible to estimate the cost of VHA payments to members without dependents in order to assess the overall cost of alternative VHA plans.



A reasonable assumption is that single members pay about the same percentage of their BAQ for housing as do married personnel. Data from Table D-5 of Appendix D shows that officer MHC is 1.69 times BAQ and enlisted MHC is 1.45 times BAQ. Using these factors and the grade weights as shown in Table D-4 of Appendix D, the average single BAQ is \$157.79 for officers and \$91.97 for enlisted members. These BAQ multipliers yield estimated single MHCs of \$267 for officers and \$133 for enlisted members.

The single member cost increment of VHA Plan PA-1, for example, is shown in Table 16. This table is the single member counterpart to Table 7. The total single officer cost is \$31 M and the single enlisted cost is \$28 M for a total of \$59 M for single members. The married total cost is \$576 M. Thus, the total cost of VHA Plan PA-1 is about \$635 M. Note especially that the single member cost is roughly 10% of the married cost.

TABLE 16  
VHA PLAN PA-1

Cost of Single Member Component of CONUS VHA  
(October 1974 Rates)

	<u>Officers</u>	<u>Enlisted</u>
Average BAQ	\$ 157.79	\$ 91.97
Average Adjustment Factor	.67	.41
Average VHA	\$ 106	\$ 38
Average Annual VHA	\$1272	\$456
June 75 CONUS Strength	232,202	1,337,128
Worldwide Percent of Personnel Single	19.9	47.4
Worldwide Percent of Single Receiving BAQ	53.5	9.7
Total Single CONUS VHA Cost	\$ 31 M	\$ 28 M

Thus, a rough cost estimate of the single member component of each of the VHA Plans can be made using the 10% factor. These are presented in Table 17 below. This table is the counterpart to Table 15.

TABLE 17

Estimated Cost of Single and Married Components  
of Selected VHA Plans

<u>Plan</u>	<u>VHA Base</u>	<u>\$ Cost, Millions</u>		
		<u>Married</u>	<u>Single</u>	<u>Total</u>
PA-4	Avg. of Lowest 10 Installation MHCs	351	35	386
PA-5	Avg. CONUS Military MHC	67.4	6.74	74.14
PA-6	Avg. Cost of Govern- ment Quarters	136	13.6	149.6
PA-7	Avg. Civilian MHC	471	47.1	518.1

Additional Housing Costs: Relocation

In addition to the monthly housing costs incurred by military members living off-post, there are other housing related costs that military members incur due to their frequent relocations. Certain of these costs, such as those for the movement of household goods within specified weight limitations, are paid by the government for military members who are E-5 and above and for E-4 with over two years of service. A dislocation allowance equal to one month's BAQ is also paid the member to partially reimburse the member for the expenses of relocating a household.

Provisions similar to the above also exist for DoD Civil Service employees, however, there are certain household relocation expenses for which Civil Service employees are reimbursed but military members are not.<sup>1</sup> The most significant dollar difference relates to expenses associated with home sale and purchase. Upon relocation, Civil Service employees are entitled to reimbursement for expenses related to (1) the sale of a home of up to the lesser of 10% of the home price or \$5000 and (2) the purchase of a home of up to the lesser of 5% of the home cost or \$2,500. Another difference relates to house hunting trips. Civil Service employees and/or spouses may be reimbursed for transportation costs, per diem and other traveler expenses for up to a six-day house hunting trip to the new location. Another difference relates to temporary quarters and subsistence expenses. Civil Service employees may be reimbursed for up to 30 days of living expenses at the old or new location for the costs of meals, lodging, laundry and cleaning for the employee and dependents. There are other minor differences related to the payment of per diem, mileage rates for second cars, etc.

These expenses are a part of all relocations. They are expenses incurred by military members as well as Civil Service employees. Since military members are not reimbursed for these expenses, these

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<sup>1</sup> Military and Civil Service entitlements in this section have been taken from the 9 July 1975 Comparison Table of Travel and Transportation Allowances prepared by the DoD Per Diem, Travel and Transportation Allowances Committee.

costs must be spread out over a several month (or years) period and in effect become a part of increased military monthly housing costs over and above the existing monthly housing costs which are already higher than civilian housing costs.

A 1975 Air Force survey<sup>1</sup> asked the question, "How was your financial situation affected by your last permanent change of station move?" Approximately 65% of all officers and enlisted members indicated that their finances were adversely affected. For married military personnel in pay grades O-4 and above and E-5 and above, these percentages ranged from 76% to 85%. Of individuals in these grades adversely affected, they primarily indicated that it took from 1 to 12 months to financially recover from the move. However, from 6% to 13% of total married personnel in these grades indicated it took over a year to financially recover. For those affected in these pay grades, the average time to recover is between 5.5 and 6 months.

This data, combined with the relative housing cost of military personnel and civilians, suggest that dealing with the variations in CONUS housing costs imposed upon military personnel by their duty assignments through a VHA based on monthly MHC is a conservative approach to the issue.

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<sup>1</sup> United States Air Force, Quality of Air Force Life Survey, June 1975.



### Comparisons of Alternative VHA Plans

The objectives, costs, advantages and disadvantages of alternative VHA plans are presented in summary form in Chart 1.

Under the current pays and allowance system, Plan PA-2, with the VHA set to equal the difference between housing costs and BAQ under a system similar to the overseas Station Housing Allowance, has the most visible element of equity. Only CONUS off-post personnel currently experience the great difference between their BAQ and their housing costs. A system identical to the overseas SHA would substantially eliminate this difference, as it does for those stationed overseas. The cost of this plan can be considered high, but it should be recognized that these costs are currently being paid by the members out of their basic pay, thus reducing the proportion of pay available for non-housing expenditures.

Recognizing that current BAQ rates don't meet average off-post housing costs, it is proper to consider the best VHA plan in a pays and allowance system with a base value different than current BAQ. Plan PA-5, based on average off-post housing costs, is structured to pay a VHA equal to the difference between a base of the average national MHC and the installation MHC. This plan would pay a VHA to those personnel at installations with housing costs above the military national average. This is about half of the off-post population. Plan PA-5, however, can be viewed as under-paying that group of personnel at installations in

## Comparison of VHA Plans

Plan Name and Basis	VHA Cost Millions	Advantages	Disadvantages
<u>PA-1: Current BAQ (Cost Index)</u> <ul style="list-style-type: none"> <li>- VHA equals difference between BAQ and average MHC</li> <li>- All receive</li> <li>- Installations grouped into 4, 6 or 10 categories based on Housing Cost Index</li> <li>- Described on Page 32</li> </ul>	\$634	<ol style="list-style-type: none"> <li>1. Equalize on &amp; off-post costs</li> <li>2. Accounts for cost variation across CONUS</li> <li>3. Few installation categories, thus less error in classifying installation</li> </ol>	<ol style="list-style-type: none"> <li>1. Most expensive plan</li> <li>2. Some may argue BAQ is improper base because some housing money now in basic pay</li> </ol>
<u>PA-2: Current BAQ (Allowance Index)</u> <ul style="list-style-type: none"> <li>- VHA equals difference between BAQ and average MHC</li> <li>- All receive</li> <li>- Identical to overseas SHA: Installations grouped in categories based on 5% increments of Housing Allowance Index producing about 25 categories</li> <li>- Described on Page 35</li> </ul>	\$636	<ol style="list-style-type: none"> <li>1. Equalize on &amp; off-post costs</li> <li>2. Accounts for cost variation across CONUS</li> <li>3. Plan exactly like overseas SHA; easy to implement</li> </ol>	<ol style="list-style-type: none"> <li>1. Most expensive plan</li> <li>2. Some may argue BAQ is improper base because some housing money now in basic pay</li> <li>3. Large number of categories increases possibility of error in classifying installations</li> </ol>
<u>PA-3: Cost-Capped Current BAQ</u> <ul style="list-style-type: none"> <li>- VHA equals 70% (or other %) of VHA of plans PA-1 or PA-2</li> <li>- The % is used to lower cost of plan</li> <li>- All receive reduced amount</li> <li>- Installations grouped as in PA-1 or PA-2</li> <li>- Described on Page 37</li> </ul>	\$440 if 70%	<ol style="list-style-type: none"> <li>1. Reduces costs of PA-1 or PA-2 with reductions shared by all; each gets part payment</li> </ol>	<ol style="list-style-type: none"> <li>1. Doesn't equalize on &amp; off-post costs</li> <li>2. Only part of off-post costs offset</li> <li>3. Difficult to rationalize arbitrary percentage reduction from a logical base</li> </ol>
<u>PA-4: Low Military Housing Cost</u> <ul style="list-style-type: none"> <li>- VHA equals difference between installation MHC and the average MHC at the 10 lowest housing cost installations</li> <li>- Installations grouped as in PA-1 or PA-2</li> <li>- Described on Page 38</li> </ul>	\$386	<ol style="list-style-type: none"> <li>1. Equalizes off-post housing outlays across CONUS</li> <li>2. Less costly than PA-1 and PA-2</li> </ol>	<ol style="list-style-type: none"> <li>1. Doesn't equalize on &amp; off-post costs (unless BAQ is adjusted to MHC of lowest 10 installations)</li> </ol>
<u>PA-5: Average Military Housing Cost</u> <ul style="list-style-type: none"> <li>- VHA equals difference between installation MHC and the military national average MHC</li> <li>- Installations grouped as in PA-1 or PA-2</li> <li>- Described on Page 38</li> </ul>	\$ 74.1	<ol style="list-style-type: none"> <li>1. Brings above average off-post costs down to the national average MHC</li> <li>2. Lower cost than plan PA-4</li> <li>3. Easy for Congress and public to understand and accept</li> <li>4. Easy for military to understand and accept</li> </ol>	<ol style="list-style-type: none"> <li>1. Doesn't equalize on &amp; off-post costs (unless BAQ is adjusted to average MHC)</li> <li>2. Doesn't pay VHA to all experiencing high costs (unless BAQ is adjusted to average MHC)</li> </ol>
<u>PA-6: Government Quarters Cost</u> <ul style="list-style-type: none"> <li>- VHA equals difference between average government quarters cost recovery rate and average MHC</li> <li>- Paid to those at installations with MHC exceeding government quarters costs</li> <li>- Installations grouped as in PA-1 or PA-2</li> <li>- Described on Page 39</li> </ul>	\$149.6	<ol style="list-style-type: none"> <li>1. Lower cost than plan PA-4</li> </ol>	<ol style="list-style-type: none"> <li>1. Doesn't equalize on &amp; off-post costs (unless BAQ is adjusted to government quarters cost)</li> <li>2. All cost variance will not be met</li> <li>3. Costs of quarters may not represent rental value of quarters being occupied</li> </ol>
<u>PA-7: Average Civilian Housing Cost</u> <ul style="list-style-type: none"> <li>- VHA equals difference between installation MHC and civilian national average MHC for comparable income groups</li> <li>- Paid to those at installations with costs above "civilian" costs</li> <li>- Installations grouped as in PA-1 or PA-2</li> <li>- Described on Page 40</li> </ul>	\$518.1	<ol style="list-style-type: none"> <li>1. Relates VHA to what "comparable" civilians pay for housing</li> <li>2. Accounts for some of the CONUS variation in housing costs</li> <li>3. Easy for Congress and public to understand and accept</li> </ol>	<ol style="list-style-type: none"> <li>1. Civilian data representing comparable age/income/geographic location groups similar to military not yet available</li> <li>2. Military housing costs are not the same as civilian housing costs</li> </ol>

areas with average housing costs less than the national average, but still above current BAQ. This problem can be resolved by raising the BAQ rates to average MHC, a possible outcome of the new pay raise reallocation legislation.<sup>1</sup> It has a readily apparent appropriateness in a salary-type military pay system.

Plan PA-4 could also reduce this under-payment problem by using as a base the average housing costs at the 10 lowest housing cost installations. This plan can also be viewed as under-paying unless BAQ were raised to the same base. In a salary-type system, it could be viewed as over-paying unless the salary standard used for setting military pay were depressed by a factor equal to the difference between average housing costs and this "low-ten" MHC.

Plan PA-6, which uses average government quarters cost as a base, could be viewed as an appropriate plan if BAQ shifted to the same base as a non-profit average rent. Plan PA-7, which uses average civilian housing costs as a base, has, like Plan PA-5, an evident appropriateness in a salary type pay system. In a pay and allowances system, it can be viewed as under-paying unless BAQ were set on the same basis.

Thus, adoption of plans other than PA-1 or PA-2 would appropriately require a change in the basis for the overseas SHA. The resulting SHA cost reductions could appropriately be applied to the cost of VHA.

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<sup>1</sup> Public Law 94-361 (37 U.S.C. 1009(c)).



### Advantages of a VHA

The primary advantage of a VHA is that it reduces the inequity which results when military personnel who receive the same BAQ experience widely disparate housing costs because of their military assignments. Except for married military personnel occupying government quarters, neither officers or enlisted personnel on the average are able to obtain housing with their BAQ at any of the 118 installations analyzed in detail. Officers pay from 13% to 117% more than their BAQ and enlisted members pay from 10% to 77% more than their BAQ. This can mean an effective pay reduction upon reassignment of up to \$220 for officers and \$94 for enlisted members, and even more if moving from government quarters to off-post quarters. On the average, officers spend \$142 more than their BAQ and enlisted members spend \$62 more than their BAQ. This represents a sizeable change in the standard of living for military members not occupying government housing as they move within the CONUS.

Given the wide variation in CONUS housing costs, a VHA also eliminates the difference in treatment of those stationed in CONUS and those stationed overseas who receive payment of an overseas SHA.

A VHA should reduce the number of military members in financial hardship situations, especially for lower ranking enlisted members. Financial hardships increase family strain as second jobs and working spouses permit less family time. Lower cost housing is often located at extended distances from the duty location, which complicates



transportation arrangements and makes use of on-post commissaries, exchanges and medical facilities more difficult. Insoluble financial pressures create family discord, sometimes extending to separation and perhaps divorce. Some involuntary family separations result from inability to pay the high housing costs. The exact extent of these problems is unknown,<sup>1</sup> but their existence is evident. They currently cause some services to attempt to limit assignment of lower ranking personnel to high housing cost areas, such as Washington, D. C. A VHA would thus allow fewer assignment limitations, reduce financial hardship, and improve morale.

It has been argued that a VHA is unnecessary because assignments to high cost and low cost areas will balance out over a "career." For some individual career personnel, this may actually occur, but it is not so on the average. For example, Army Combat Arms assignments are almost 100% at installations in the lowest half of the military housing cost range. Navy surface ship and submarine assignments are primarily at installations in the top half of the military housing cost range. Further, the bulk of one term or two term members, the lower ranking members whose relative need for a VHA is the greatest, do not move enough to experience this "balancing" effect. An advantage of a VHA system, then, is that it would permit a recognition of these realities.

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<sup>1</sup> Review of reports from Commander, Military District Washington, D.C., on the effects of high living costs on military personnel stationed in Washington, D.C.

A CONUS VHA has the additional advantage of potentially reducing construction costs for government quarters. According to a 9 August 1976 Program Decision Memorandum issued to the services, almost 26% of the DoD government quarters deficit for the next five years (about 5,000 buildable units) of \$390 million is due to construction justified on the basis of "excessive" housing costs in the vicinity of the subject military installations.<sup>1</sup> This translates into a five-year cost of \$100 million or an annual cost of \$20 million. Housing costs in excess of 25% of RMC for pay grades O-4 and below and in excess of 18 to 24%, depending on pay grade, for pay grades O-5 and above, are treated as excessive.<sup>2</sup> A VHA would provide housing dollars to individuals in specific relation to local housing costs, and the need to build quarters because of excessive local housing market costs would be significantly reduced. The outyear O&M costs of operating these quarters would also be avoided. These capital investment and operating cost avoidances could appropriately be applied to the cost of a VHA.

#### Disadvantages of a VHA

The primary disadvantage of a VHA is its cost. A VHA, set to meet the average housing costs with BAQ plus VHA, would cost about \$635 million annually. If BAQ was raised to the level of average military housing costs, the VHA cost would be about \$74 million. However,

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<sup>1</sup> 9 August 1976 Program Decision Memorandum for Defense Agencies and Defense-Wide Programs.

<sup>2</sup> DoD Instruction 4165.45, "Determination of Family Housing Requirements."

these costs would be substantially offset by savings in SHA and housing construction and operation.

Some argue that a VHA for military personnel in CONUS could create pressures for a civilian VHA for Federal civil service employees paid on a national pay scale. This does not, however, appear to be a likely possibility. Federal Wage Board employees are paid under local wage scales, which are partly determined by housing costs in the area. The President's Pay Panel has recommended that General Schedule clerical and technical personnel also be paid under local rather than national wage scales. Implementation would reduce the proportion of the Federal workforce on national salaries. Also over time some people have observed that some General Schedule pay grades for comparable positions are higher in high cost areas, such as Washington, D. C. than they are in low cost areas.<sup>1</sup> If true, this is, in effect, a kind of geographical pay adjustment. This kind of criticism could tend to mute efforts to extend a VHA to civilian employees. In any case, the need for a VHA has primarily to do with the involuntary nature of military assignments, and should probably be judged on that basis.

Some also argue that a VHA in CONUS has the potential to create morale problems among members whose VHA is reduced or eliminated when they are assigned to locations with a lower MHC. They may view

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<sup>1</sup> Classification of Federal White-Collar Jobs Should be Controlled, GAO Report to the Congress, 4 December 1975.

the VHA reduction as an unfair pay cut. This potential disadvantage can be overcome by sound information programs to insure that members understand why this component of the allowance system exists. Variations from area to area overseas in cost-of-living allowances and housing allowances have not created significant levels of dissatisfaction. On the other hand, significant levels of dissatisfaction, extending to some volume of Congressional correspondence from both members and their parents has been experienced when overseas COLA and SHA levels in a given area have not responded promptly to dramatic changes in the cost elements on which they are based. Examples are changes in Germany caused by revaluation of the mark and dollar and by high inflation rates. While such rapid changes are unlikely in the U.S., the existence of special allowances does tend to sensitize recipients to changes in the indexes on which they are based.

Some also argue that it would be desirable to house all military members on-post since living in close proximity to one another fosters increased esprit and dedication to the unit and thus leads to a better fighting unit. A VHA would increase the percentage of members preferring to live off-post, since the current economic incentive to live on-post would be reduced. The 1975 Department of Defense CONUS Family Housing Preference Survey Report showed that 42% of married members prefer to live on-post (with 3% having no preference). Under a "fair market rental" system for government housing, 33% preferred



to live on-post (with 17% having no preference). Thus, a CONUS VHA could increase the need to require members to live on-post contrary to their desire.

#### Improved Survey Data Needed

This paper has been primarily based upon currently available data in the NAVFAC survey. The NAVFAC survey was designed to collect data to support family housing construction and leasing programs and other local objectives. To implement a CONUS VHA, improvements in the data base would be required:

- a. Single member housing expenditures. The NAVFAC survey is limited to coverage of members with dependents. It would have to be expanded to include single members.
- b. Survey frequency. The survey is currently taken only when there is a data requirement. An annual NAVFAC survey would be required to provide a common time data base for all installations, for determining installation categorization and appropriate VHA levels.
- c. Coverage. The current NAVFAC survey does not survey a sufficient number of people in each grade at an installation to allow an accurate estimate of monthly housing costs. Both owner and renter costs should be obtained to adequately reflect costs for all family sizes across all housing types and locations in the local housing market.
- d. Data Inflation by Survey Respondents. There is some concern that housing cost data may be overstated by personnel who know that the

data is being used to determine their VHA. This problem would be likely to have become evident in survey data to support the overseas station housing allowance. As already noted, SHA survey screening techniques, and procedures to eliminate extreme responses appear to successfully minimize the problem. Nevertheless, a system of random audits of a statistical sample of responses could be used as a quality control check to insure data accuracy if considered necessary.

A survey redesign and expansion could probably be completed in time to effect the January 1978 survey. This would provide a data base for a CONUS VHA by mid-1978, to support implementation of a VHA by 1 October 1978. Reasonable estimates to support inclusion in the FY 1979 budget could be made based on data from the current survey.

QUADRENNIAL REVIEW OF MILITARY COMPENSATION  
VARIABLE HOUSING ALLOWANCE  
STAFF RESEARCH PAPER

Conclusions

The QRM Staff concludes that:

- a. There is a very large variation in average off-post housing costs for military personnel within the CONUS. It ranges from 110 to 215 percent of average current BAQ rates. This variation warrants establishment of a VHA to offset its effect on non-housing spendable dollars for all military members.
- b. It is possible to structure a VHA to allow recognition of significant CONUS housing cost differences.
- c. The NAVFAC Family Housing Survey can be modified to provide a suitable data base for a VHA covering both married and single, renter and buyer.
- d. A VHA and the current overseas station housing allowance should be on a similar base. The latter is currently a non-taxable allowance based on BAQ.
- e. A VHA can be based on current BAQ rates, average housing costs, or BAQ set on those costs, or civilian housing costs. Based on October 1974 BAQ rates and January 1975 off-post housing costs, nominal VHA costs will range from \$74 million to \$636 million depending on the base chosen.

- f. Should military compensation be based on a standard, such as civilian sector or Federal civilian pay levels, some reductions in SHA rates would be required, permitting reductions in SHA costs.
- g. Should military compensation be converted to a salary system, a base would be required for both SHA and a VHA.
- h. As with other reimbursement-type allowances, VHA should be a non-taxable allowance.
- i. A VHA will permit reductions in the cost of military construction and associated operations and maintenance costs.

#### Recommendations

The QRMC Staff recommends that:

- a. Because of the great variations in average housing costs from post to post in the CONUS, that a VHA be incorporated into the system of allowances for military personnel.
- b. The VHA be based on one of the plans presented as most appropriate to the military compensation system established after the Third QRMC.
- c. The overseas station housing allowance be modified to the same base as the VHA.
- d. SHA and housing construction and operation cost avoidance be applied against the cost of a VHA.
- e. The Per Diem Travel and Transportation Allowance Committee be tasked to develop a VHA consistent with the conclusions and



recommendations of this Staff Research Paper, and preparation of legislation to appropriately modify 37 U.S.C. 405 to add a VHA to the COLA and SHA therein.

## ★ APPENDIX B •

### TABLE I

\*Regardless of the effective date of this Appendix, Housing Allowances for enlisted members with dependents in pay grade E-1, E-2, E-3, or E-4 with 2 years service or less are not payable at the With Dependents rate until specifically authorized by Chapter 4, Part C. However, members in these grades who are authorized to reside with individually sponsored dependents in the vicinity of their overseas duty stations will be entitled to these allowances at the Without Dependents rate.

## Appendix A

## Members of the Uniformed Services

Locality	Housing Allowances		Cost-of-Living Allowances		Travel Per Diem Allowances	
	Index	Eff. Date	Index	Eff. Date	Rate	Eff. Date
Finland:						
Officers .....	175	11-5-75	140	11-5-75	\$56.00	11-5-75
Enlisted .....	200	11-5-75	140	11-5-75	56.00	11-5-75
France:						
★Crozon .....	120	4-9-76	134	11-5-75	40.00	11-5-75
★Grenoble .....	135	4-9-76	134	11-5-75	40.00	11-5-75
★Hyeres:						
Officers .....	130	4-9-76	134	11-5-75	40.00	11-5-75
Enlisted .....	180	4-9-76	134	11-5-75	40.00	11-5-75
★La Seyne .....	155	4-9-76	134	11-5-75	40.00	11-5-75
★Montpellier .....	160	4-9-76	134	11-17-75	40.00	11-5-75
★Paris (City of):						
Officers .....	260	4-9-76	148	11-5-75	76.00	3-17-76
Enlisted .....	255	4-9-76	148	11-5-75	76.00	3-17-76
★Paris (Environs): <sup>35</sup>						
Officers .....	260	4-9-76	148	11-5-75	76.00	3-17-76
Enlisted .....	255	4-9-76	148	11-5-75	76.00	3-17-76
★Salon-de-Provence .....	255	4-9-76	134	11-5-75	40.00	11-5-75
Other .....	None	6-6-75	None	6-14-73	40.00	11-5-75
French Guiana .....	None	1-1-63	None	2-1-59	37.00	7-23-73
French Polynesia .....	None	1-1-63	None	2-1-59	59.00	3-17-76
French Territory of Afars and Issas (formerly French Somaliland) ..	None	1-1-63	None	2-1-59	51.00	2-10-75
French West Indies:						
12-15-4-15 .....	None	1-1-63	None	2-1-59	55.00	12-30-75
4-16-12-14 .....	None	1-1-63	None	2-1-59	47.00	12-30-75
★Gabon .....	None	1-1-63	158	4-9-76	61.00	4-9-76
Gambia .....	None	1-1-63	None	2-1-59	28.00	10-10-75
Germany: <sup>9, 32</sup>						
Federal Republic of Germany						
(West Germany) - By States:						
Baden-Wuerttemberg:						
Boeblingen .....	135	12-16-75	104	12-16-75	31.00	12-16-75
Boettingen:						
Officers .....	110	10-1-75	114	12-16-75	31.00	12-16-75
Enlisted .....	125	10-1-75	114	12-16-75	31.00	12-16-75
Bremgarten:						
Officers .....	110	10-1-75	114	12-16-75	31.00	12-16-75
Enlisted .....	125	10-1-75	114	12-16-75	31.00	12-16-75
Echterdingen .....	135	12-16-75	104	12-16-75	31.00	12-16-75
Edigen:						
Officers .....	125	10-1-75	104	12-16-75	31.00	12-16-75
Enlisted .....	135	12-16-75	104	12-16-75	31.00	12-16-75

APPENDIX A

TABLE B-1

## RANKING OF INSTALLATIONS BY COMPOSITE MHC

Installation	Monthly Housing Costs (MHC)	Percent of Personnel at Installation	Cumulative Percent of Personnel	MHC Index	Ratio of MHC to BAQ	Ratio of MHC to RMC
BOSTON MA	267	0.0005	0.0005	1.2126	1.8061	0.2943
WAR-PHI PA	265	0.0013	0.0018	1.2065	1.7970	0.2928
LA AFS CA	265	0.0012	0.0030	1.2060	1.7963	0.2927
NEW YOR NY	265	0.0020	0.0050	1.2033	1.7922	0.2920
BOL-WAS DC	265	0.0069	0.0119	1.2028	1.7916	0.2919
HOMESTE FL	262	0.0047	0.0167	1.1893	1.7715	0.2867
HANSCOM MA	261	0.0016	0.0183	1.1879	1.7694	0.2863
ANDREWS MD	259	0.0067	0.0251	1.1757	1.7512	0.2854
BAYONNE NJ	258	0.0066	0.0255	1.1747	1.7497	0.2851
WASH DC DC	256	0.0145	0.0401	1.1654	1.7359	0.2829
MIL DIS DC	254	0.0112	0.0513	1.1544	1.7194	0.2802
SANFRAN CA	252	0.0395	0.0818	1.1458	1.7067	0.2781
FT BELV VA	249	0.0063	0.0881	1.1314	1.6853	0.2746
PEASE NH	248	0.0037	0.0918	1.1269	1.6786	0.2735
EL TORO CA	246	0.0091	0.1009	1.1165	1.6631	0.2710
LOWRY CO	245	0.0091	0.1100	1.1122	1.6567	0.2700
LAKEHUR NJ	243	0.0016	0.1116	1.1045	1.6452	0.2681
FT MONM NJ	243	0.0033	0.1149	1.1024	1.6421	0.2676
PHILADE PA	241	0.0070	0.1219	1.0968	1.6337	0.2662
SCHENEC NY	241	0.0014	0.1232	1.0956	1.6319	0.2659
FITZSAH CO	240	0.0018	0.1251	1.0922	1.6268	0.2651
FT DETR MD	240	0.0006	0.1256	1.0916	1.6259	0.2649
NEW LON CN	239	0.0106	0.1363	1.0851	1.6163	0.2634
PATRICK FL	239	0.0030	0.1393	1.0846	1.6155	0.2633
WREEDAH DC	238	0.0035	0.1428	1.0809	1.6100	0.2624
KIRKLAN NM	237	0.0037	0.1464	1.0795	1.6079	0.2620
CLEVELA OH	237	0.0002	0.1467	1.0768	1.6039	0.2614
NEW BRU ME	236	0.0030	0.1497	1.0730	1.5983	0.2604
SANDIEG CA	236	0.0919	0.2417	1.0712	1.5956	0.2600
FT JACK SC	235	0.0150	0.2566	1.0693	1.5928	0.2595
FT SHER IL	235	0.0015	0.2581	1.0667	1.5889	0.2589
FT ORD CA	234	0.0167	0.2768	1.0637	1.5844	0.2582
FT MCPH GA	233	0.0017	0.2785	1.0613	1.5809	0.2576
OFFUTAB NB	233	0.0101	0.2886	1.0607	1.5799	0.2574
DALLAS TX	233	0.0009	0.2896	1.0583	1.5763	0.2569
FT MEAD MD	232	0.0114	0.3010	1.0554	1.5720	0.2562
PORTSNO NH	232	0.0008	0.3017	1.0551	1.5716	0.2561
ORLANDO FL	232	0.0115	0.3132	1.0535	1.5691	0.2557
MCDILL FL	231	0.0056	0.3188	1.0496	1.5634	0.2548
CECIL F FL	230	0.0164	0.3251	1.0457	1.5576	0.2535
DXRIVER MD	229	0.0037	0.3288	1.0412	1.5508	0.2527
CARLISL PA	229	0.0065	0.3294	1.0399	1.5489	0.2524
JAXVILL FL	229	0.0073	0.3367	1.0396	1.5485	0.2523
NORFOLK VA	229	0.0801	0.4168	1.0391	1.5477	0.2522
FT DIX NJ	228	0.0090	0.4258	1.0378	1.5458	0.2519
PORTLAN OH	227	0.0065	0.4263	1.0328	1.5384	0.2507
USARTKC MI	226	0.0015	0.4278	1.0284	1.5317	0.2496
LACKLAN TX	225	0.0176	0.4454	1.0237	1.5248	0.2485
KANSASC MO	224	0.0007	0.4462	1.0182	1.5166	0.2471
POPE AB NC	224	0.0033	0.4495	1.0179	1.5161	0.2471
GEORGAB CA	223	0.0046	0.4541	1.0130	1.5089	0.2459
CASTLAB CA	222	0.0050	0.4591	1.0113	1.5064	0.2455
ROCKISL IO	222	0.0002	0.4593	1.0099	1.5043	0.2451
FT DEVE MA	222	0.0059	0.4653	1.0097	1.5040	0.2451
GRANFOR ND	222	0.0050	0.4703	1.0084	1.5020	0.2448
CHARLES SC	222	0.0186	0.4889	1.0070	1.5011	0.2446
SEATTLE WA	221	0.0013	0.4902	1.0063	1.4988	0.2442
FT LEE VA	221	0.0059	0.4961	1.0056	1.4979	0.2441
EGLINAB FL	220	0.0166	0.5067	0.9979	1.4864	0.2422
FT BRAG NC	217	0.0350	0.5417	0.9884	1.4722	0.2399
NEWPORT RI	217	0.0041	0.5457	0.9873	1.4706	0.2396



TABLE B-1 (Cont'd)

## RANKING OF INSTALLATIONS BY COMPOSITE MHC

Installation	Monthly Housing Costs (MHC)	Percent of Personnel at Installation	Cumulative Percent of Personnel	MHC Index	Ratio of MHC to BAQ	Ratio of MHC to RMC
RICKEAB OH	216	0.0027	0.5484	0.9817	1.4623	0.2383
FT EUST VA	216	0.0074	0.5559	0.9808	1.4608	0.2380
SCOTT IL	215	0.0040	0.5599	0.9753	1.4528	0.2367
GRIFFIS NY	214	0.0041	0.5640	0.9746	1.4517	0.2366
MCCORD WA	214	0.0046	0.5686	0.9726	1.4488	0.2361
PENSACO FL	213	0.0096	0.5782	0.9700	1.4449	0.2354
FT CARS CO	210	0.0193	0.5975	0.9543	1.4214	0.2316
FT SAMH TX	209	0.0088	0.6064	0.9523	1.4184	0.2311
FT GORD GA	208	0.0148	0.6211	0.9441	1.4063	0.2292
ST LOUI MO	207	0.0009	0.6220	0.9428	1.4042	0.2288
HILL AB UT	207	0.0032	0.6252	0.9397	1.3997	0.2281
MCCONAB KA	206	0.0038	0.6290	0.9381	1.3972	0.2277
FT CAMP KY	206	0.0191	0.6481	0.9365	1.3949	0.2273
LITRKAB AK	206	0.0062	0.6542	0.9362	1.3945	0.2272
NEW ORL LA	205	0.0020	0.6562	0.9302	1.3856	0.2258
OAKDALE PA	204	0.0002	0.6564	0.9284	1.3828	0.2253
FT HARR IN	203	0.0336	0.6601	0.9223	1.3738	0.2239
LEMOORE CA	203	0.0059	0.6659	0.9212	1.3721	0.2236
BREMERT WA	202	0.0047	0.6706	0.9191	1.3691	0.2231
FT LEW WA	202	0.0219	0.6925	0.9188	1.3686	0.2230
FT HUAC AR	202	0.0048	0.6974	0.9181	1.3675	0.2226
FT MONR VA	202	0.0012	0.6986	0.9180	1.3674	0.2228
WARREN WY	201	0.0037	0.7023	0.9158	1.3641	0.2223
FT HOOD TX	200	0.0404	0.7427	0.9105	1.3561	0.2210
KESSLAB MS	200	0.0139	0.7566	0.9098	1.3552	0.2208
BEALEAB CA	200	0.0047	0.7613	0.9093	1.3545	0.2207
TINKER OK	199	0.0036	0.7648	0.9056	1.3489	0.2198
WHIDISL WA	199	0.0052	0.7701	0.9052	1.3483	0.2197
GULFPORT MS	198	0.0049	0.7749	0.8982	1.3379	0.2180
CANNON NM	197	0.0044	0.7793	0.8971	1.3362	0.2177
VANDENB CA	197	0.0146	0.7840	0.8935	1.3309	0.2169
CHERRY NC	196	0.0091	0.7930	0.8931	1.3303	0.2168
GRISCOM IN	196	0.0027	0.7957	0.8931	1.3302	0.2168
ENGLAND LA	195	0.0029	0.7986	0.8872	1.3215	0.2153
CAMPLEY NC	195	0.0314	0.8300	0.8869	1.3210	0.2153
HALMSTR MT	195	0.0048	0.8348	0.8857	1.3193	0.2150
EDWARDS CA	195	0.0035	0.8383	0.8854	1.3189	0.2149
WURTSMI MI	195	0.0033	0.8416	0.8844	1.3173	0.2146
CHASE F TX	194	0.0016	0.8432	0.8838	1.3165	0.2145
TWINEP CA	193	0.0035	0.8467	0.8758	1.3045	0.2126
FT BENN GA	192	0.0157	0.8625	0.8736	1.3012	0.2120
FT LEAV KA	192	0.0029	0.8654	0.8730	1.3003	0.2119
ABERDEE MD	191	0.0054	0.8706	0.8662	1.2903	0.2102
CHANUTE IL	190	0.0198	0.8806	0.8617	1.2835	0.2091
MERIDIA MS	190	0.0030	0.8836	0.8615	1.2831	0.2091
KINGSVL TX	189	0.0019	0.8855	0.8601	1.2811	0.2088
MEMPHIS TN	187	0.0095	0.8950	0.8513	1.2680	0.2066
FT BLIS TX	186	0.0126	0.9075	0.8476	1.2625	0.2057
USAMISC AL	186	0.0037	0.9112	0.8458	1.2599	0.2053
FT RILE KA	186	0.0154	0.9266	0.8443	1.2576	0.2049
FT KNOX KY	185	0.0164	0.9450	0.8407	1.2522	0.2040
CRAIGAB AL	181	0.0019	0.9469	0.8209	1.2228	0.1993
FT RUCK AL	179	0.0055	0.9524	0.8114	1.2086	0.1969
FT SILL OK	178	0.0149	0.9673	0.8090	1.2050	0.1964
ALTUS OK	176	0.0042	0.9715	0.7993	1.1906	0.1940
FT WOOD MO	169	0.0121	0.9836	0.7859	1.1409	0.1859
FT POLK LA	165	0.0164	1.0000	0.7508	1.1183	0.1822

TABLE B-2

## RANKING OF INSTALLATIONS BY OFFICER MHC

Installation	Monthly Housing Costs (MHC)	Percent of Personnel at Installation	Cumulative Percent of Personnel	MHC Index	Ratio of MHC to BAQ	Ratio of MHC to RMC
NEW YOR NY	456	0.0027	0.0027	1.3021	2.1743	0.2847
WAR-PHI PA	449	0.0018	0.0045	1.2837	2.1435	0.2806
BOSTON MA	438	0.0015	0.0060	1.2510	2.0890	0.2735
BAYONNE NJ	434	0.0009	0.0069	1.2403	2.0712	0.2712
HANSCOM MA	430	0.0064	0.0133	1.2272	2.0493	0.2683
BOL-WAS DC	427	0.0273	0.0406	1.2206	2.0382	0.2668
MIL DIS DC	413	0.0404	0.0810	1.1801	1.9705	0.2580
WASH DC DC	410	0.0470	0.1279	1.1718	1.9567	0.2562
LAKEHUR NJ	408	0.0011	0.1291	1.1668	1.9484	0.2551
ANDREWS MD	407	0.0110	0.1401	1.1618	1.9401	0.2540
PORTSNO NH	403	0.0009	0.1410	1.1508	1.9216	0.2516
EL TORO CA	402	0.0074	0.1484	1.1476	1.9162	0.2509
CLEVELA OH	401	0.0003	0.1487	1.1452	1.9124	0.2504
SANDIEG CA	400	0.0575	0.2062	1.1437	1.9097	0.2500
LA AFS CA	396	0.0065	0.2128	1.1313	1.8892	0.2473
WREEDAH DC	391	0.0090	0.2218	1.1171	1.8653	0.2442
PHILADE PA	391	0.0075	0.2293	1.1160	1.8636	0.2440
HOMESTE FL	389	0.0032	0.2326	1.1121	1.8570	0.2431
FT MONM NJ	388	0.0040	0.2366	1.1084	1.8508	0.2423
SANFRAN CA	387	0.0227	0.2593	1.1071	1.8487	0.2420
FT BELV VA	387	0.0059	0.2652	1.1062	1.8472	0.2418
JAXVILL FL	387	0.0084	0.2736	1.1059	1.8467	0.2418
DXRIVER MD	386	0.0046	0.2782	1.1039	1.8433	0.2413
FT ORD CA	384	0.0124	0.2906	1.0976	1.8328	0.2400
NEW LON CN	384	0.0082	0.2988	1.0974	1.8325	0.2399
CECIL F FL	381	0.0054	0.3042	1.0877	1.8163	0.2378
PEASE NH	379	0.0038	0.3080	1.0829	1.8082	0.2367
MCDILL FL	374	0.0062	0.3141	1.0695	1.7859	0.2338
NORFOLK VA	374	0.0587	0.3729	1.0683	1.7839	0.2336
NEW BRU ME	373	0.0041	0.3769	1.0657	1.7796	0.2330
PATRICK FL	372	0.0043	0.3813	1.0620	1.7733	0.2322
DALLAS TX	371	0.0006	0.3819	1.0603	1.7705	0.2318
EGLINAB FL	371	0.0130	0.3949	1.0591	1.7685	0.2315
SCHENEC NY	370	0.0008	0.3956	1.0583	1.7673	0.2314
CHARLES SC	370	0.0125	0.4081	1.0574	1.7656	0.2312
FT HEAD MD	368	0.0152	0.4234	1.0502	1.7537	0.2296
FT DETR MD	365	0.0011	0.4245	1.0437	1.7428	0.2282
LOWRY CO	365	0.0063	0.4308	1.0423	1.7405	0.2279
FT DEVE MA	365	0.0056	0.4364	1.0416	1.7393	0.2277
ORLANDO FL	363	0.0024	0.4388	1.0373	1.7321	0.2268
FT MCPH GA	361	0.0045	0.4433	1.0302	1.7203	0.2252
FT DIX NJ	360	0.0064	0.4497	1.0293	1.7188	0.2250
FT SHER IL	358	0.0028	0.4525	1.0222	1.7069	0.2235
OFFUTAB NB	357	0.0203	0.4728	1.0211	1.7051	0.2232
USARTKC MI	357	0.0026	0.4754	1.0197	1.7027	0.2229
FITZSAH CO	357	0.0045	0.4798	1.0196	1.7027	0.2229
OAKDALE PA	354	0.0006	0.4805	1.0120	1.6898	0.2212
GEORGAB CA	351	0.0040	0.4844	1.0031	1.6750	0.2193
FT SAMH TX	348	0.0161	0.5005	0.9938	1.6595	0.2173
FT CARB CO	347	0.0110	0.5115	0.9917	1.6561	0.2168
KANSASC MO	346	0.0008	0.5123	0.9889	1.6513	0.2162
CANNON NM	345	0.0029	0.5152	0.9858	1.6462	0.2155
NEWPORT RI	345	0.0110	0.5262	0.9844	1.6438	0.2152
RICKLEB OH	344	0.0026	0.5289	0.9822	1.6401	0.2147
CHERRY NC	343	0.0063	0.5351	0.9805	1.6373	0.2144
FT LEE VA	343	0.0100	0.5451	0.9803	1.6369	0.2143
ST LOUI MO	343	0.0028	0.5478	0.9796	1.6357	0.2142
FT JACK SC	342	0.0047	0.5526	0.9768	1.6311	0.2135
PENSACO FL	341	0.0172	0.5697	0.9755	1.6290	0.2133
CASTLAB CA	341	0.0046	0.5743	0.9737	1.6260	0.2129
SCOTT IL	339	0.0091	0.5834	0.9696	1.6191	0.2120

TABLE B-2 (Cont'd)

## RANKING OF INSTALLATIONS BY OFFICER MHC

Installation	Monthly Housing Costs (MHC)	Percent of Personnel at Installation	Cumulative Percent of Personnel	MHC Index	Ratio of MHC to BAQ	Ratio of MHC to RMC
FT BRAG NC	339	0.0280	0.6113	0.9692	1.6185	0.2119
BEALEAB CA	339	0.0045	0.6158	0.9689	1.6178	0.2116
CHASE F TX	338	0.0026	0.6184	0.9647	1.6108	0.2109
LITRKAB AK	337	0.0073	0.6257	0.9640	1.6097	0.2107
NEW ORL LA	337	0.0030	0.6287	0.9629	1.6079	0.2105
CARLISL PA	332	0.0026	0.6313	0.9499	1.5862	0.2077
LACKLAN TX	332	0.0104	0.6417	0.9498	1.5860	0.2076
PORTLAN OR	332	0.0003	0.6420	0.9478	1.5827	0.2072
POPE AB NC	332	0.0037	0.6457	0.9472	1.5817	0.2071
WHIDISL WA	331	0.0057	0.6515	0.9468	1.5810	0.2070
ROCKISL IO	331	0.0013	0.6527	0.9458	1.5794	0.2068
GRIFFIS NY	329	0.0051	0.6579	0.9407	1.5708	0.2057
GRANFOR ND	328	0.0061	0.6640	0.9365	1.5639	0.2047
SEATTLE WA	327	0.0012	0.6652	0.9352	1.5617	0.2045
MERIDIA MS	325	0.0026	0.6678	0.9277	1.5492	0.2028
ENGLAND LA	324	0.0020	0.6698	0.9265	1.5472	0.2026
CAMPLEJ NC	323	0.0162	0.6859	0.9227	1.5408	0.2017
KIRKLAN NM	322	0.0081	0.6940	0.9202	1.5366	0.2012
MCCONAB KA	322	0.0044	0.6985	0.9190	1.5345	0.2009
KESSLAB MS	319	0.0090	0.7075	0.9123	1.5234	0.1995
FT HARR IN	317	0.0052	0.7127	0.9069	1.5144	0.1983
MCCHORD WA	317	0.0044	0.7171	0.9063	1.5133	0.1981
FT KNOX KY	317	0.0187	0.7358	0.9062	1.5133	0.1981
MEMPHIS TN	317	0.0035	0.7393	0.9051	1.5114	0.1979
FT EUST VA	317	0.0068	0.7461	0.9045	1.5103	0.1977
FT LEAV KA	316	0.0130	0.7591	0.9041	1.5097	0.1977
HILL AB UT	315	0.0045	0.7636	0.8995	1.5021	0.1967
LEMOORE CA	314	0.0047	0.7683	0.8962	1.4965	0.1959
FT LEW WA	313	0.0183	0.7867	0.8946	1.4939	0.1956
WURTSMI MI	313	0.0031	0.7898	0.8940	1.4928	0.1954
BREMERT WA	311	0.0032	0.7930	0.8892	1.4848	0.1944
TINKER OK	311	0.0044	0.7974	0.8887	1.4839	0.1943
FT MONR VA	310	0.0046	0.8020	0.8865	1.4803	0.1938
CRAIGAB AL	309	0.0054	0.8074	0.8841	1.4762	0.1933
VANDENB CA	309	0.0053	0.8127	0.8840	1.4761	0.1933
ABERDEE MD	309	0.0074	0.8201	0.8833	1.4750	0.1931
EDWARDS CA	309	0.0044	0.8246	0.8823	1.4734	0.1929
GULFPORT MS	308	0.0013	0.8258	0.8794	1.4685	0.1923
KINGSVL TX	308	0.0029	0.8287	0.8769	1.4676	0.1921
FT BENN GA	308	0.0202	0.8489	0.8786	1.4671	0.1921
FT RILE KA	304	0.0132	0.8621	0.8696	1.4521	0.1901
FT HOOD TX	304	0.0264	0.8885	0.8692	1.4515	0.1900
TWINEP CA	304	0.0019	0.8904	0.8690	1.4511	0.1900
WARREN WY	304	0.0048	0.8952	0.8686	1.4504	0.1899
FT BLIS TX	303	0.0138	0.9090	0.8667	1.4472	0.1895
FT GORD GA	303	0.0096	0.9186	0.8666	1.4470	0.1894
ALTUS OK	303	0.0040	0.9226	0.8653	1.4450	0.1892
GRISSEM IN	296	0.0033	0.9259	0.8466	1.4136	0.1851
MAHMSTR MT	295	0.0061	0.9320	0.8436	1.4086	0.1844
FT RUCK AL	293	0.0117	0.9437	0.8365	1.3966	0.1829
USAMISC AL	291	0.0048	0.9485	0.8305	1.3868	0.1816
FT CAMP KY	291	0.0153	0.9638	0.8301	1.3862	0.1815
CHANUTE IL	290	0.0034	0.9672	0.8298	1.3856	0.1814
FT HUAC AR	290	0.0074	0.9746	0.8287	1.3838	0.1812
FT WOOD MO	279	0.0051	0.9797	0.7978	1.3322	0.1744
FT SILL OK	274	0.0159	0.9956	0.7833	1.3080	0.1712
FT POLK LA	236	0.0044	1.0000	0.6745	1.1264	0.1475



TABLE B-3

## RANKING OF INSTALLATIONS BY ENLISTED MHC

<u>Installation</u>	<u>Monthly Housing Costs (MHC)</u>	<u>Percent of Personnel at Installation</u>	<u>Cumulative Percent of Personnel</u>	<u>MHC Index</u>	<u>Ratio of MHC to BAQ</u>	<u>Ratio of MHC to RMC</u>
LA AFS CA	245	0.0004	0.0004	1.2236	1.7739	0.3071
HOMESTE FL	242	0.0050	0.0054	1.2077	1.7509	0.3031
BOSTON MA	240	0.0004	0.0057	1.1989	1.7382	0.3009
BOL-WAS DC	239	0.0038	0.0095	1.1949	1.7324	0.2999
WAR-PHI PA	236	0.0012	0.0107	1.1822	1.7139	0.2967
ANDREWS MD	235	0.0061	0.0168	1.1766	1.7058	0.2953
HANSCOM MA	235	0.0009	0.0177	1.1741	1.7022	0.2947
NEW YOR NY	235	0.0019	0.0196	1.1730	1.7006	0.2944
WASH DC DC	232	0.0095	0.0291	1.1608	1.6829	0.2913
SANFRAN CA	231	0.0317	0.0608	1.1536	1.6725	0.2895
BAYONNE NJ	231	0.0005	0.0780	1.1536	1.6725	0.2895
MIL DIS DC	229	0.0067	0.0680	1.1444	1.6591	0.2872
PEASE NH	227	0.0036	0.0716	1.1363	1.6474	0.2852
FT BELV VA	227	0.0064	0.0780	1.1356	1.6463	0.2850
LOWRY CO	226	0.0095	0.0875	1.1288	1.6365	0.2833
KIRKLAN NM	224	0.0030	0.0905	1.1207	1.6249	0.2813
FITZSAH CO	222	0.0014	0.0919	1.1095	1.6086	0.2765
EL TORO CA	221	0.0094	0.1013	1.1052	1.6023	0.2774
SCHENEC NY	221	0.0014	0.1028	1.1031	1.5993	0.2769
FT DETR MD	220	0.0005	0.1033	1.1021	1.5978	0.2766
FT MONM NJ	220	0.0032	0.1065	1.0981	1.5920	0.2756
FT JACK SC	218	0.0165	0.1230	1.0922	1.5835	0.2741
PHILADE PA	218	0.0069	0.1299	1.0887	1.5785	0.2732
PATRICK FL	218	0.0028	0.1327	1.0882	1.5776	0.2731
LAKEHUR NJ	217	0.0017	0.1344	1.0846	1.5724	0.2722
NEW LON CN	216	0.0110	0.1454	1.0790	1.5643	0.2705
FT SHER IL	215	0.0013	0.1467	1.0763	1.5605	0.2701
NEW BRU ME	214	0.0029	0.1495	1.0724	1.5547	0.2691
OFFUTAB NB	214	0.0086	0.1581	1.0689	1.5497	0.2683
WREEDAH DC	214	0.0027	0.1608	1.0683	1.5488	0.2681
FT MCPH GA	213	0.0013	0.1621	1.0673	1.5474	0.2679
CARLISL PA	212	0.0002	0.1623	1.0621	1.5399	0.2666
ORLANDO FL	211	0.0129	0.1752	1.0553	1.5300	0.2649
CLEVELA OH	211	0.0002	0.1754	1.0552	1.5299	0.2648
DALLAS TX	211	0.0010	0.1764	1.0551	1.5297	0.2646
FT HEAD MD	211	0.0108	0.1872	1.0541	1.5283	0.2646
PORTLAN OR	211	0.0005	0.1877	1.0537	1.5277	0.2645
FT ORD CA	210	0.0197	0.2074	1.0517	1.5248	0.2640
SANDIEG CA	210	0.0972	0.3046	1.0486	1.5202	0.2632
LACKLAN TX	208	0.0187	0.3233	1.0415	1.5100	0.2614
MCDILL FL	208	0.0055	0.3288	1.0415	1.5100	0.2614
FT DIX NJ	208	0.0094	0.3382	1.0376	1.5043	0.2604
POPE AB NC	207	0.0032	0.3414	1.0348	1.5003	0.2597
CECIL F FL	206	0.0065	0.3479	1.0315	1.4955	0.2589
NORFOLK VA	206	0.0834	0.4313	1.0284	1.4910	0.2581
USARTKC MI	206	0.0013	0.4327	1.0282	1.4907	0.2580
PORTSNO NH	205	0.0007	0.4334	1.0261	1.4876	0.2575
GRANFOR ND	205	0.0048	0.4382	1.0257	1.4871	0.2574
ROCKISL IO	205	0.0001	0.4383	1.0251	1.4862	0.2573
KANSASC MO	205	0.0007	0.4390	1.0237	1.4842	0.2569
SEATTLE WA	205	0.0013	0.4403	1.0234	1.4837	0.2568
DXRIVER MD	204	0.0036	0.4439	1.0213	1.4806	0.2563
CASTLAB CA	204	0.0051	0.4490	1.0192	1.4777	0.2558
JAXVILL FL	204	0.0072	0.4562	1.0187	1.4769	0.2557
GEORGAB CA	203	0.0047	0.4609	1.0133	1.4690	0.2543
FT LEE VA	202	0.0053	0.4662	1.0101	1.4644	0.2535
FT EUST VA	200	0.0075	0.4737	0.9994	1.4489	0.2508
FT DEVE MA	200	0.0060	0.4797	0.9985	1.4476	0.2506
CHARLES SC	198	0.0195	0.4992	0.9916	1.4376	0.2489
FT BRAG NC	198	0.0360	0.5353	0.9912	1.4371	0.2488
MCCORD WA	198	0.0047	0.5399	0.9885	1.4332	0.2481



TABLE B-3 (Cont'd)

## RANKING OF INSTALLATIONS BY ENLISTED MHC\*

Installation	Monthly Housing Costs (MHC)	Percent of Personnel at Installation	Cumulative Percent of Personnel	MHC Index	Ratio of MHC to BAQ	Ratio of MHC to RMC
NEWPORT RI	197	0.0030	0.5429	0.9856	1.4290	0.2474
GRIFFIS NY	196	0.0039	0.5469	0.9816	1.4231	0.2464
RICKEAB OH	196	0.0027	0.5496	0.9792	1.4196	0.2457
EGLINAB FL	196	0.0102	0.5598	0.9786	1.4187	0.2456
SCOTT IL	195	0.0032	0.5631	0.9745	1.4128	0.2446
PENSACO FL	193	0.0084	0.5715	0.9661	1.4006	0.2425
FT CAMP KY	193	0.0197	0.5912	0.9635	1.3969	0.2418
FT GORD GA	193	0.0156	0.6067	0.9632	1.3964	0.2417
HILL AB UT	190	0.0029	0.6097	0.9485	1.3751	0.2380
FT CARS CO	188	0.0206	0.6303	0.9416	1.3651	0.2363
MCCONAB KA	188	0.0037	0.6340	0.9410	1.3643	0.2362
FT HUAC AR	188	0.0044	0.6384	0.9405	1.3635	0.2360
FT SAMH TX	188	0.0077	0.6462	0.9384	1.3605	0.2355
ST LOUI MO	186	0.0006	0.6467	0.9303	1.3487	0.2335
WARREN WY	185	0.0035	0.6503	0.9265	1.3433	0.2325
LITRKAB AK	185	0.0069	0.6563	0.9262	1.3428	0.2325
LEMOORE CA	185	0.0060	0.6623	0.9258	1.3422	0.2323
BREMERT WA	185	0.0049	0.6672	0.9251	1.3412	0.2322
FT MONR VA	185	0.0007	0.6679	0.9244	1.3402	0.2320
FT HARR IN	185	0.0034	0.6713	0.9242	1.3400	0.2320
FT LEWI WA	185	0.0225	0.6938	0.9232	1.3385	0.2317
FT HOOD TX	184	0.0425	0.7363	0.9196	1.3332	0.2308
NEW ORL LA	184	0.0018	0.7382	0.9189	1.3322	0.2306
TINKER OK	182	0.0034	0.7416	0.9080	1.3164	0.2279
KESSLAB MS	181	0.0146	0.7562	0.9069	1.3148	0.2276
GRISSOM IN	181	0.0026	0.7588	0.9037	1.3102	0.2268
OKDALE PA	181	0.0002	0.7590	0.9030	1.3092	0.2266
GULFPOR MS	180	0.0054	0.7645	0.9012	1.3066	0.2262
MALMSTR MT	179	0.0046	0.7691	0.8952	1.2978	0.2247
VANDENB CA	179	0.0045	0.7736	0.8939	1.2960	0.2243
WHIDISL WA	178	0.0051	0.7787	0.8914	1.2924	0.2237
BEALEAB CA	178	0.0047	0.7835	0.8906	1.2913	0.2235
EDWARDS CA	177	0.0033	0.7868	0.8841	1.2817	0.2219
WURTSMI MI	176	0.0033	0.7901	0.8795	1.2751	0.2207
TWINEP CA	175	0.0038	0.7939	0.8755	1.2693	0.2197
CAMPLEJ NC	175	0.0338	0.8276	0.8748	1.2682	0.2195
ENGLAND LA	175	0.0030	0.8307	0.8741	1.2673	0.2194
CANNON NM	174	0.0046	0.8353	0.8704	1.2618	0.2184
FT BENN GA	174	0.0150	0.8503	0.8700	1.2614	0.2184
CHANUTE IL	174	0.0108	0.8611	0.8684	1.2589	0.2179
CHERRY NC	173	0.0095	0.8706	0.8667	1.2566	0.2175
FT LEAV KA	172	0.0014	0.8720	0.8623	1.2501	0.2164
ABERDEE MD	172	0.0051	0.8771	0.8594	1.2459	0.2157
CHASE F TX	172	0.0015	0.8786	0.8593	1.2459	0.2157
KINGSVL TX	171	0.0017	0.8803	0.8528	1.2364	0.2140
USAMISC AL	170	0.0035	0.8838	0.8480	1.2294	0.2128
MERIDIA MS	168	0.0031	0.8869	0.8410	1.2193	0.2111
FT BLIS TX	168	0.0124	0.8992	0.8403	1.2182	0.2109
FT RILE KA	167	0.0157	0.9149	0.8352	1.2109	0.2096
MEMPHIS TN	167	0.0104	0.9253	0.8343	1.2096	0.2094
FT KNOX KY	164	0.0103	0.9437	0.8205	1.1896	0.2059
FT SILL OK	163	0.0148	0.9584	0.8140	1.1802	0.2043
FT RUCK AL	160	0.0045	0.9630	0.8025	1.1635	0.2014
DRAIGAB AL	160	0.0014	0.9644	0.8015	1.1620	0.2011
ALTUS OK	156	0.0042	0.9686	0.7791	1.1296	0.1955
FT POLK LA	154	0.0162	0.9868	0.7699	1.1162	0.1932
FT WOOD MO	151	0.0132	1.0000	0.7553	1.0950	0.1895

A CATEGORIZATION OF CONUS MILITARY INSTALLATIONS  
ACCORDING TO TWO VHA PLANS

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Alabama</u>		
Ft. Rucker	5	4
Craig AFB	5	4
<u>Arizona</u>		
Ft. Huachuca	4	3
*Yma P. G.	5	3
*Gila Bend	5	3
<u>Arkansas</u>		
Little Rock AFB	4	3
*Blytheville	5	3
<u>California</u>		
Los Angeles	1	1
San Diego	3	2
San Francisco	2	2
*Centreville Beach	4	3
Lemoore	4	3
El Toro	2	2
Twenty-nine Palms	5	3
Ft. Ord	3	2
*China Lake	5	3
*El Centro	4	3
*Long Beach	3	2
*Port Hueneme	5	3
*Barstow	5	3
*Camp Pendleton	5	3
*Oakland Army Terminal	3	2
*Sacramento	3	3
Edwards AFB	5	3
Vandenberg AFB	4	3
*Travis AFB	4	3
Castle AFB	3	2
Beale AFB	4	3
George AFB	3	2
*Sharpe A.D.	5	3
*Sierra A.D.	5	3

<u>State and Installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Colorado</u>		
Lowrey TTC	2	2
Ft. Carson	4	3
Fitzsimmons A. H.	3	2
<u>Connecticut</u>		
New London	3	2
<u>Delaware</u>		
*Dover AFB	4	3
<u>District of Columbia</u>		
(All installations in metropolitan D.C. area)	1	1
<u>Florida</u>		
Jacksonville	3	2
Pensacola	4	3
Orlando	3	2
*Key West	4	3
*Panama City	4	3
Cecil Fld.	3	2
*Mayport	3	2
Eglin AFB	4	3
Homestead AFB*	2	2
*Patrick AFB	4	3
MacDill AFB	3	2
*Tyndall AFB	4	3
<u>Georgia</u>		
*Athens	4	3
Albany	4	3
Ft. McPherson	3	2
Ft. Gordon	4	3
Ft. Benning	5	3
*Marietta	5	3
*Glynco NAS	5	3
*Ft. Stewart	5	3
*Robins AFB	5	3
*Moody AFB	5	3
<u>Idaho</u>		
*Mt. Home AFB	3	2
*Idaho Falls	3	2

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Illinois</u>		
*Chicago	2	2 or 1
*Great Lakes	3	2
Scott AFB	4	3
*Glenview, IL	4	3
<u>Indiana</u>		
Indianapolis and Ft. Harrison	4	3
Grissom AFB	5	3
<u>Iowa</u>		
Rock Island	3	2
<u>Kansas</u>		
Ft. Leavenworth	5	3
McConnell AFB	4	3
Ft. Riley	5	4
<u>Kentucky</u>		
Ft. Campbell	4	3
Ft. Knox	5	4
*Lexington	4	3
<u>Louisiana</u>		
New Orleans	4	3
Ft. Polk	6	4
England AFB	5	3
*Barksdale AFB	4	3
<u>Maine</u>		
Brunswick	3	2
*Winter Harbor	4	3
*East Machias	4	3
*Loring AFB	4	3
<u>Maryland</u>		
Patuxent River	3	2
Ft. Meade	3	2
Aberdeen P.G.	5	3
Andrews AFB	2	1
*Ft. Ritchie	4	3
*Ft. Detrick	4	3
*Bainbridge	4	3



<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Massachusetts</u>		
Boston	1	1
*Nantucket	3	2
Hanscom AFB	2	1
Ft. Devens	3	2
*Natick Labs	3	2
*Westover	3	2
<u>Michigan</u>		
U.S. Army Tank Command	3	2
*Sawyer AFB	5	3
Wurtsmith AFB	5	3
*Kincheloe AFB	5	3
*Selfridge AFB	5	3
<u>Minnesota</u>		
*Minneapolis-St. Paul	2 or 3	2
*Duluth	2 or 3	2
<u>Mississippi</u>		
Gulfport	5	3
Meridian	5	3
*Pascagoula	5	3
Kessler TTC	4	3
*Jackson	4	3
*Vicksburg	4	3
<u>Missouri</u>		
Kansas City	3	2
St. Louis	4	3
Ft. Wood	6	4
*Richards-Grebaud AFB	3	2
*Whiteman AFB	5	3
<u>Montana</u>		
Malmstrom AFB	5	3
<u>Nebraska</u>		
Omaha	3	2
Offut AFB	3	2
<u>Nevada</u>		
*Las Vegas	4	3
*Fallon	4	3
*Hawthorne	4	3

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>New Hampshire</u>		
Portsmouth	3	2
Pease AFB	2	1
<u>New Jersey</u>		
Lakehurst	3	2
Bayonne	2	1
Ft. Dix-McGuire AFB	3	2
<u>New Mexico</u>		
Cannon AFB	5	3
Kirkland AFB	3	2
*White Sands M.R.	5	3
<u>New York</u>		
New York City	1	1
Schenectady	3	2
*Griffin AFB	3	2
*Seneca	3	2
*Ft. Drum	3	2
*Hancock Fld.	3	2
*Plattsburg	3	2
*U.S. Military Academy	3	2
<u>North Carolina</u>		
Ft. Bragg-Pope AFB	4	3
*Seymour Johnson AFB	4	3
Camp Lejeune	5	3
Cherry Point MCAS	5	3
*New River MCAS	5	3
*Cape Hatteras	5	3
<u>North Dakota</u>		
Grand Forks AFB	3	2
*Minot AFB	3	2
<u>Ohio</u>		
Rickenbacker AFB	4	3
*Cincinnati	3	2
*Wright-Patterson AFB	3	2
Cleveland	3	2

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Oklahoma</u>		
* McAlester	5	4
Ft. Sill	5	4
Altus AFB	6	4
Tinker AFB	4	3
<u>Oregon</u>		
Portland	3	2
Coos Bay	4	3
<u>Pennsylvania</u>		
Philadelphia	1 or 2	1
* Mechanicsburg	4	3
* Indiantown Gap Mil. Res.	4	3
Carlisle Barracks	3	2
Oakdale	4	3
* Letterhenny A.D.	4	3
<u>Rhode Island</u>		
Newport	4	3
* Davisville	4	3
<u>South Carolina</u>		
Ft. Jackson	3	2
Charleston	3	2
* Beaufort-Parris Island	4	3
* Myrtle Beach AFS	4	3
* Shaw	4	3
<u>South Dakota</u>		
* Ellsworth AFB	3	2
<u>Tennessee</u>		
Memphis	5	3
<u>Texas</u>		
Chase Fld.	5	4
Dallas	3	2
Kingsville	5	4
Ft. Sam Houston	4	3
Lackland TTC	3	2
* Reese AFB	4	3
* Sheppard TTC	4	3
Ft. Hood	4	3
Ft. Bliss	5	4

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Texas (Cont'd)</u>		
*Corpus Christi	5	4
*Bergstrom AFB	5	4
*Carswell AFB	5	4
*Dyress AFB	5	4
*Ellington AFB	5	4
*Goodfellow AFB	5	4
*Laughlin AFB	5	4
*Webb AFB	5	4
Red River A.D.	5	4
<u>Utah</u>		
Hill AFB	4	3
*Dugway P.G.	4	3
<u>Virginia</u>		
*Newport News	3	2
Norfolk	3	2
Yorktown	3	2
Belvoir	2	2
Ft. Eustis	4	3
Ft. Lee	3	3
Ft. Monroe	4	3
*Dahlgren Lab	3	2
*Langley AFB	3	2
<u>Washington</u>		
Bremerton	4	3
Seattle	3	2
Whidbey Island	4	3
Ft. Lewis	4	3
*McChord AFB	4	3
<u>West Virginia</u>		
*Sugar Grove	4	3
<u>Wisconsin</u>		
*Milwaukee	2	2
Ft. McCoy		
<u>Wyoming</u>		
Warren AFB	4	3

**\*1975 NAVFAC data unavailable, installation not included in the 118 installations studied, installation categorized based on geographic proximity to known installations and population densities.**



TABLE D-1

MILITARY FAMILY OFF POST MONTHLY  
OWNER AND RENTER HOUSING COSTS

<u>Pay Grade</u>	<u>Weight</u> <sup>1</sup>	<u>BAC</u>	<u>Owner Cost</u>	<u>Renter Cost</u>	<u>Combined Owner and Renter Cost</u>	<u>Per Cent Who Rent</u>
O-6	.0553	273	528	406	485	13.3%
O-5	.1219	252	464	383	453	12.5
O-4	.1993	227	419	333	405	15.7
O-3	.3550	206	372	278	343	29.2
O-2	.1437	185	320	238	279	51.8
O-1	.1248	149	304	214	235	73.2
Weighted ) Average ) Above ) -- Officer ) Grades )		210	385	295	354	32.3
E-8	.0244	182	301	271	283	22.7
E-7	.0855	170	281	241	262	28.2
E-6	.1506	158	273	222	241	51.0
E-5	.2258	146	256	193	204	80.8
E-4	.2970	128	233	172	176	94.7
E-3	.2167	111	210	161	163	97.6
Weighted ) Average ) Above ) -- Enlisted ) Grades )		138	245	190	199	80.4
Weighted ) Average ) -- All Above ) Personnel )		148	264	204	220	73.8

<sup>1</sup> Weights shown reflect officer and enlisted CONUS fractions for grades shown.

TABLE D-2

AVERAGE OFFICER BAQ, MHC, MHC/BAQ, AND  
BAQ MULTIPLIERS, ALTERNATIVE CATEGORIZATIONS

<u>Category</u>	<u>Average BAQ</u>	<u>Average MHC</u>	<u>MHC Index MHC/BAQ</u>	<u>BAQ Multiplier MHC Index -1</u>	<u>Percent of Personnel</u>
Five Percent VHA Categorization Plan					
1	210	432	2.06	1.06	3.98
2	210	410	1.96	.96	10.89
3	210	386	1.84	.84	5.12
4	210	368	1.76	.76	11.38
5	210	355	1.69	.69	21.17
6	210	339	1.61	.61	12.43
7	210	319	1.51	.51	14.56
8	210	310	1.48	.48	10.76
9	210	300	1.43	.43	8.35
10	210	260	1.24	.24	1.35
Ten Percent VHA Categorization Plan					
1	210	432	2.06	1.06	3.98
2	210	394	1.88	.88	16.01
3	210	374	1.78	.78	32.46
4	210	324	1.54	.54	27.01
5	210	308	1.47	.47	19.11
6	210	260	1.24	.24	1.35
Fifteen Percent VHA Categorization Plan					
1	210	422	2.01	1.01	14.87
2	210	376	1.79	.79	37.58
3	210	319	1.52	.52	37.85
4	210	288	1.37	.37	9.70

TABLE D-3

AVERAGE ENLISTED BAQ, MHC, MHC/BAQ, AND  
BAQ MULTIPLIER, ALTERNATIVE CATEGORIZATIONS

<u>Category</u>	<u>Average BAQ</u>	<u>Average MHC</u>	<u>MHC Index MHC/BAQ</u>	<u>BAQ Multiplier MHC Index -1</u>	<u>Percent of Personnel</u>
-----------------	------------------------	------------------------	------------------------------	--	---------------------------------

Five Percent VHA Categorization Plan

1	138	239	1.73	.73	.77
2	138	234	1.70	.70	2.87
3	138	224	1.62	.62	6.55
4	138	214	1.55	.55	14.78
5	138	204	1.48	.48	24.20
6	138	195	1.41	.41	10.79
7	138	184	1.33	.33	16.62
8	138	173	1.25	.25	12.74
9	138	164	1.19	.19	7.06
10	138	153	1.11	.11	3.56

Ten Percent VHA Categorization Plan

1	138	239	1.73	.73	.77
2	138	229	1.66	.66	9.42
3	138	209	1.51	.51	38.93
4	138	190	1.37	.37	27.41
5	138	170	1.23	.23	19.80
6	138	153	1.11	.11	3.56

Fifteen Percent VHA Categorization Plan

1	138	234	1.70	.70	3.64
2	138	211	1.53	.53	45.53
3	138	184	1.33	.33	40.15
4	138	161	1.17	.17	10.62

TABLE D-4  
BAQ, RMC, AND MHC,  
JANUARY 1975 AND JANUARY 1976

<u>Pay Grade</u>	<u>Jan 1975 BAQ</u>	<u>Jan 1976 BAQ</u>	<u>Jan 1975 MHC</u>	<u>Jan 1976 MHC</u>	<u>Jan 1975 RMC</u>	<u>Jan 1976 RMC</u>	<u>Weights</u>
06	273	286	485	556	2675	2820	.0553
05	252	265	453	502	2207	2325	.1219
04	227	239	405	457	1825	1919	.1993
03	206	217	343	383	1500	1581	.3550
02	185	195	279	303	1210	1271	.1437
01	149	157	235	258	913	959	.1248
Weighted Officer Average	210	220	354	394	1600	1685	
E8	182	191	283	313	1276	1341	.0244
E7	170	179	262	288	1115	1170	.0855
E6	158	166	241	258	961	1001	.1506
E5	146	154	204	218	809	850	.2258
E4	128	134	176	187	695	731	.2970
E3	111	116	163	177	561	664	.2167
Weighted Enlisted Average	138	145	200	214	797	838	
All Personnel	148	155	221	239	906	953	



TABLE D-5

MHC RELATIVE TO BAQ AND RMC AND BAQ RELATIVE TO RMC,  
JANUARY 1975 AND JANUARY 1976

Pay Grade	MHC/BAQ		MHC/RMC		BAQ/RMC
	Jan 1975	Jan 1976	Jan 1975	Jan 1976	Jan 1975 <sup>a</sup>
Officer Grade					
06	1.777	1.944	.181	.197	.102
05	1.798	1.894	.205	.216	.114
04	1.784	1.912	.222	.238	.124
03	1.665	1.765	.228	.242	.137
02	1.508	1.554	.231	.238	.153
01	1.577	1.643	.257	.269	.163
Weighted Officer Average	1.685	1.791	.221	.234	.131
E8	1.555	1.639	.222	.233	.143
E7	1.541	1.609	.235	.246	.152
E6	1.525	1.554	.251	.256	.164
E5	1.397	1.416	.252	.256	.180
E4	1.375	1.396	.253	.256	.184
E3	1.468	1.526	.291	.266	.198
Weighted Enlisted Average	1.449	1.476	.251	.256	.173
All Personnel	1.493	1.541	.244	.250	.162

<sup>a</sup> Share of BAQ in RMC unchanged between 1975 and 1976.

Table D-6  
Monthly Military Income and Housing Cost Data

Pay Grade	Married RMC <sup>1</sup>	Total Family Income for Married Personnel <sup>2</sup>	MHC <sup>3</sup>		MHC for all as a % of RMC	MHC for all as a % of Family Income	MHC for Owners as a % of Family Income	MHC for Renters as a % of Family Income
			Owners	Renters	All			
06	2591	2795	498	406	485	18.7	17.4	14.5
05	2119	2355	464	383	453	21.4	19.2	16.3
04	1750	1958	419	333	405	23.1	20.7	17.0
03	1455	1655	372	278	343	23.6	20.7	16.8
02	1167	1391	320	238	279	23.9	20.2	17.2
01	881	1111	304	214	235	26.7	21.2	19.3
Weighted Officer Average	1545	1756 (114% of RMC)	384	295	354	22.9	20.2	16.8
E8	1212	1397	301	271	288	23.8	20.6	19.4
E7	1051	1244	281	241	262	24.9	21.1	19.4
E6	907	1093	273	222	241	26.6	22.0	20.3
E5	760	982	256	193	204	26.8	20.8	19.7
E4	653	865	233	172	176	27.0	20.3	19.9
E3	568	761	210	161	163	28.7	21.4	21.2
Weighted Enlisted Average	745	949 (127% of RMC)	245	190	200	26.8	21.1	20.0
All Personnel	854	1059 (124% of RMC)	264	204	221	25.9	20.9	19.3

<sup>1</sup> Reflects CY 1974, 9 months of 1 Oct 73 rates and 3 months of 1 Oct 74 rates.

<sup>2</sup> From IRS sample of 1974 married military tax returns, equal to adjusted gross income plus BAO, BAS and married tax advantage.

<sup>3</sup> Monthly housing cost from Jan 75 NAVFAC Family Housing Survey.

Appendix D

THE FEASIBILITY OF A GEOGRAPHIC  
PAY SUPPLEMENT FOR CONUS  
MILITARY PERSONNEL

A Contract Report

Prepared By

Center for Naval Analysis

Institute of Naval Studies

September 1975

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## SUMMARY

There has been concern for some time that the current system, in which personnel receive the same pay regardless of their duty station, imposes a hardship on personnel assigned to high cost-of-living areas. This study examined the extent to which it is currently feasible, as well as desirable, to provide military personnel in the Continental United States with a geographic pay adjustment (GPA) to account for regional differences in living costs.

### THE FEASIBILITY OF A GPA

#### Data Availability and Adequacy

The federal government (Bureau of Labor Statistics) publishes annually only one set of data on regional cost-of-living differences, the Urban Family Standard Budgets' cost-of-living (COL) indexes. These data contain COL indexes for 38 metropolitan areas and 4 regional "non-metropolitan" areas. In addition, cost indexes for seven commodity categories (housing, food, transportation, medical care, personal care, clothing, and other items) are provided.

These data were examined and judged to be inadequate for the purposes of a GPA. Only 20 percent of CONUS military personnel were found to be in the 38 metropolitan areas for which COL indexes are available. The other 80 percent of personnel would not be fairly represented by the four regional "non-metropolitan" area indexes. There are large metropolitan areas for which data are not available, and the personnel in these other areas would not be fairly represented by one of the "non-metropolitan" indexes. A 1969 study by the National Industrial Conference Board studied these data and found that national companies would be unable to use them for pay adjustment purposes for the same reasons.

There does exist one source of data on prices paid by CONUS military personnel, the Naval Facilities Engineering Command (NAVFAC) housing expenditure data. NAVFAC surveys personnel at each CONUS installation and obtains estimates, by rank, of average monthly housing costs. Installations are surveyed on a rotating basis at least once every 3 years. These are the only currently available data on prices paid by military personnel on an installation-by-installation basis.

How the NAVFAC data might be used in the implementation of a GPA was then considered. First, could the NAVFAC data be used to adjust total pay? It was suggested that they should not be used in this fashion, for two reasons. First, the data are correlated, but not perfectly, with overall living costs. There will be areas which have high (low) housing costs which have low (high) overall living costs. Use of a specific commodity cost index to adjust total pay will thus lead to errors in adjustment of compensation at some installations. Second, analysis of the Family Budgets' COL indexes showed that the geographic variation in housing costs is much larger than the

geographical variation in overall living costs. Using a housing cost index to adjust total pay would lead to overadjustment of pay of those personnel in high housing cost areas and underadjustment of pay of those personnel in low housing cost areas.

The basic conclusion was, then, that an overall COL adjustment cannot be made from available data. Data adequate for this purpose do not exist. If policy-makers opt for an overall COL adjustment, data will have to be generated via price surveys in areas in which military installations are located.

The next question was whether the NAVFAC data might be used to adjust some portion of pay which reflects the dollars available for housing, without introducing more geographic variation in real pay than currently exists. There was concern that if prices are not uniformly high or low within given areas, then adjusting some portion of pay for variation in housing costs would add to the geographic variation in total real pay rather than reducing it. Knowledge was needed of whether the prices of different commodities are positively or negatively correlated across geographic areas.

To get at this question, the various commodity COL indexes in the BLS data were correlated, and virtually no negative correlations were found. The costs of different commodities appears to be positively correlated across geographic areas. If these results hold for all geographic areas, then adjusting some portion of pay representing housing dollars on the basis of a housing cost index will, in fact, reduce the geographic variation in real pay, although not completely eliminate it.

#### Construction of Installation Housing Cost Indexes

Several tasks were performed using the NAVFAC data. First, the national average monthly housing cost (MHC) of personnel in six officer and six enlisted pay grades was compared with the RMC and BAQ of personnel in these ranks. For January 1975 data, MHC was found to be 22.1 percent of average officer RMC and 25.1 percent of average enlisted RMC. MHC was further found to be 68.5 percent greater than average officer BAQ and 44.9 percent greater than average enlisted BAQ. Second, housing cost indexes (HCIs) were constructed for 118 CONUS installations. The index for each installation is a weighted average of the monthly housing costs of personnel in six officer and six enlisted paygrades. Separate indexes for officers and enlisted personnel were also constructed. Indexes could be constructed for only 118 installations because data for other installations were either unavailable or unusable. The installations included in the indexes housed 74 percent of the June 30, 1975 CONUS force.

Generally speaking, the indexes that were constructed came out as expected. The range on the all personnel index was from 75 (Ft. Polk, La.) to 121 (Boston, Mass.). There are distinct rural/urban differences as well as regional differences in these indexes. The highest housing costs were displayed in the large metropolitan areas. The lowest costs were displayed in rural Southern and Midwestern areas.



Installations were then categorized for the purpose of implementing a variable housing allowance (VHA). Categorizations had to satisfy two criteria. There should be a small number of categories so that the plan would be administratively easy to implement, but the number should not be so few that installations with truly dissimilar housing costs are lumped together. Clearly, there is a tradeoff between these criteria.

Categorizations based on 5 percent, 10 percent, and 15 percent increments in the all personnel HCI were made. The 5 percent categorization produced nine categories of installations, while the other two produced six and four categories, respectively. It was suggested that the 10 percent or 15 percent categorizations are preferable. They produce a relatively small number of categories without appearing to lump truly dissimilar installations together.

After categorizing the installations for which cost indexes were available, all the CONUS installations for which indexes were not available were categorized by examining the indexes for installations in close geographic proximity with known indexes together with subjective judgments about the category in which these installations belong.

Several prototype VHA plans were then considered. These plans varied according to (1) the base for the VHA and (2) whether officers and enlisted personnel will be treated separately. The base for the VHA is the portion of RMC which is identified as dollars available for housing. Under alternative assumptions, six different measures of the housing dollars available in RMC were identified. The first measure was current BAQ. The other measures included BAQ plus either (1) the tax advantage implicit in BAQ (computed two different ways), (2) a portion of the 1971-73 pay raises identified as dollars for housing, or (3) both (1) and (2).

Instead of using BAQ or some other measure of housing dollars as the basis for a VHA, an alternative procedure would be to choose some fraction of pay, e.g., .20, as the basis. The housing dollars available for housing would be this specified fraction times pay. Under a salary system the base would have to be some fraction of salary or pay, since under this system there would be no separate allowance on which to base the VHA. Since the fractional base would probably be the share of housing costs in civilian budgets, such estimates were obtained for various income classes of civilians from the 1970 Census and the 1973 Current Housing Report.

For each of the three categorizations and each measure of housing dollars, the VHA adjustment factor for each category of installations is the percentage excess of average MHC in the category over the given measure of housing dollars. These adjustment factors were provided for the various prototype plans.

Because consideration may be given to separate treatment of officers and enlisted personnel, separate VHA adjustment factors were computed for officers and enlisted personnel. For the plans based on BAQ or one of the other measures derived from BAQ,

officers in a given category of installations would receive a larger percentage VHA adjustment than enlisted personnel because of the fact that officers currently have higher housing costs relative to BAQ than enlisted personnel. However, in the plans based on some specified fraction of pay, enlisted personnel would receive a larger percentage VHA adjustment than officers, unless this specified fraction is lower for officers than enlisted personnel. This result holds because housing costs are a larger fraction of enlisted pay than officer pay.

Next, the cost of the various prototype plans was considered. Only plans which would pay a VHA to personnel at installations where housing costs exceed the housing dollars available in pay were considered. Plans which would reduce pay at installations where housing costs are below available housing dollars were not.

The plan based on current BAQ would be the most expensive. If this plan pays a VHA at each category of installations equal to 100 percent of the difference between average MHC for the category and BAQ, the plan will cost approximately \$635 million. Plans based on other, more stringent measures of the housing dollars available in pay would cost less. A plan which uses 20 percent of pay as the base would cost approximately \$300 million.

#### THE DESIRABILITY OF A GPA

There are several desirability issues. Obviously, one relates to cost. On the surface, the VHA plans considered here would not be cheap. However, these cost estimates are made on the assumptions that such a program is to be implemented instantaneously, and other components of pay will remain unchanged. The "cost" of the plan hinges upon whether total pay will be higher with such a plan than it would have been without such a plan. If the plan were to be integrated into the next several pay raises such that those personnel at the high housing cost installations receive above average pay raises and those at the low housing cost installations receive lower than average pay raises the plan could be implemented without a significant budgetary impact.

Certain arguments have been ventured against a GPA. One is that personnel transferred from high cost areas to low cost areas will view the loss of the VHA as an unfair pay cut. Another is that assignment to high and low cost areas probably balance out over the course of a military career, so that a GPA is not necessary. We tend to discount these arguments. A recent survey has found that a majority of personnel is in favor of a VHA. The second argument does not hold either in the case of non-careerists or careerists assigned only to high cost areas during their careers. However, a VHA plan may have allocative effects which are unknown at this point. It is not known what effects such a plan will have on recruiting and retention. A GPA, for instance, may affect the supply of recruits to the different services if one service benefits from a GPA more than the others. There is currently no empirical data with which to estimate such potential effects, although we do not believe they would be very significant.

The primary reason for implementing a GPA is one of equity. The extent to which a duty assignment in a high cost-of-living area imposes a hardship on a serviceman is something which is impossible to measure quantitatively. Judgments about the inequity of the current system are inherently value judgments. Before implementing a GPA, policy-makers will have to evaluate the extent of the inequity and the extent to which they should attempt to reduce geographic differentials in living costs.

#### CONCLUSIONS AND RECOMMENDATIONS

A VHA is currently feasible although an adjustment to total pay is not. If policy-makers opt for an adjustment to total pay, a new price survey which generates the necessary data base will be needed.

If it is decided that a VHA will be implemented, we strongly recommend that better housing cost data be obtained. There are some problems in the NAVFAC data which need resolution if the NAVFAC data are to serve as a fully adequate data base. The problems with the NAVFAC data are (1) all installations are not surveyed contemporaneously, (2) the by-rank MHC averages are, in many cases, based on very small samples and appear to be subject to a great deal of sampling variation, (3) the survey is conducted by mail and, if personnel recognized that the survey formed the basis for a VHA, they would have the incentive to overstate housing costs, and (4) the survey does not control for the quantity or quality of housing.

An alternative way of obtaining housing cost data is to define one or several standard types of housing units and have a team of surveyors determine the costs of such units in the different areas where military installations are located. A properly designed survey would eliminate the above mentioned defects in the current NAVFAC survey.



## INTRODUCTION

This report considers the feasibility and desirability of making geographic adjustments to military pay (denoted hereafter as GPA) to correct for regional variation in the cost of living in the Continental United States (CONUS). The basic policy question is whether an attempt should be made to ensure that military personnel receive incomes which are comparable in real terms regardless of their duty station. The results will help provide the basis for such a decision.

The report is divided into four major sections. The first asks whether adequate geographic price level or cost-of-living data on which to base a GPA currently exists.

The second section attempts to answer several questions, the basic question being how available data should be used. While an overall cost-of-living index should be used to adjust Regular Military Compensation (RMC), an overall cost-of-living index may not be available. If, rather, a housing cost index is available, could this index be used to adjust RMC? If the housing cost index is ruled out as an adjustor for RMC, could it still be used as an adjustor for a specific component of pay, i.e., basic allowance for quarters (BAQ)? This is an important question, for it is possible that if BAQ is adjusted rather than RMC, the extent of geographic variation in real pay will be increased rather than reduced.

In the third section, Naval Facilities Engineering Command (NAVFAC) housing cost data are used to construct housing cost indexes for 118 CONUS installations that house 89.9 percent of the June 30, 1975 CONUS force. Then, various ways of grouping installations for the purposes of a Variable Housing Allowance (VHA) are considered. Installations for which housing cost data are not available are grouped using information on known installations. Finally, cost estimates for different plans are made. It is suggested that these cost estimates may be more apparent than real, depending on how the VHA is introduced and integrated with future changes in pay.

Finally, an evaluation of the GPA concept and suggestions for ways to implement it, should such a decision be made, are provided.



## THE EXISTING DATA ON INTERAREA VARIATION IN THE COST OF LIVING

The Federal Government constructs, on a continuing basis, two regional series pertaining to price levels or living costs. The first series is a consumer price index which is constructed for 56 geographic areas. These area consumer price indexes are time price indexes which have as a base January 1967. The indexes indicate period to period price changes within a particular area and cannot be used to infer interarea variation in price levels. Each area index has a base period index of 100 for January 1967, but a January 1967 index of 100 in one area does not indicate the same level of prices as an index of 100 for another area. One could not infer how much interarea variation there is in prices from these indexes, and they could not be incorporated into construction of a GPA.

A second data series, the Urban Family Standard Budgets, can be used to make inferences about interarea variation in living costs. The budget (nominal income) required to obtain "lower," "intermediate," and "higher" standards of living are computed yearly in Autumn for 38 CONUS metropolitan areas and 4 non-metropolitan areas.<sup>1</sup> The total budget required to obtain each specified level of living in each area is decomposed into the following commodity categories: food, housing, transportation, clothing, personal care, medical care, and other items. For each geographic area, cost-of-living (COL) indexes at each level of living are computed for the total budget and each commodity category within the total budget by dividing the expenditures required in the given budget category by the national average expenditure for that category.

Because the commodity baskets are, in many cases, not held constant from area to area, these indexes are COL and not price (P) indexes.<sup>2</sup> Because of the interarea variation in the market basket, a question arises as to whether these COL indexes really

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<sup>1</sup>The most recent data are found in reference 1. Previous years' data are found in reference 2, various yearly editions. Technical analyses of the methodology used to construct the budgets are found in reference 3. The market baskets selected for these budget studies reflect the consumption pattern of a family of four: 38 year-old husband, a non-working wife, 13 year-old son, and 7 year-old daughter.

<sup>2</sup>As examples of the interarea variation in the market basket (1) the food basket in the Southern areas contains more pork and chicken and less beef than that in the Northeastern areas, (2) clothing quantities vary geographically, (3) the mix of private and public transportation depends upon the adequacy of available transportation in each survey area, and (4) heating and air conditioning requirements vary geographically.

provide useful information about interarea variation in prices. Sherwood (reference 4) has examined this issue and found the problem not to be very important.

However, the question arises as to whether these indexes could be used as the basis for a GPA even if one overlooks the fact that they are COL indexes and not P indexes. To be judged to be adequate for the purposes of a GPA, the primary criterion would be what proportion of CONUS personnel are located in the 38 metropolitan areas. Using June 1974 CONUS force strength data, we estimated that there were 262,241 personnel in these areas, 19.77 percent of total CONUS personnel at that time.

The problem which thus arises is whether the four regional non-metropolitan indexes could be used as the basis for a GPA for the 80.23 percent of personnel not located in the 38 metropolitan areas for which COL indexes are computed. These indexes will not be adequate if there is significant variation in living costs among the installations located in the non-metropolitan areas. There are many large metropolitan areas excluded which contain military personnel. Also, there is likely to be significant variation across areas in living costs within each of the four "non-metropolitan" areas. Therefore, we judge that this data is not adequate for the purposes of a GPA. These indexes would not accurately reflect the living costs of substantial numbers of CONUS military personnel.

A study conducted in 1969 by the National Industrial Conference Board (reference 5) investigated the feasibility of geographic pay adjustments for white collar workers employed by national companies (most of whom still pay a single salary to white collar workers regardless of location). The Family Budgets indexes, as well as all other data, were found inadequate for the same reasons. Indexes are not available for a substantial number of areas in which white collar workers are located.

Other sources of data on regional variation in prices were examined and found inadequate for the purposes of a GPA. The Federal Home Loan Bank Board computes average transaction price of new and existing homes for 18 major U.S. cities on a monthly basis. Again, the fact that these prices are for only 18 areas makes them inadequate for our purposes. A more comprehensive data source is the National Association of Home Builder's index of construction costs, which is constructed bimonthly for approximately 400 geographic areas. The basic problem with this index is that the land component of housing prices is not included, and the price of this component is likely to be one of the significant sources of geographic variation in housing costs. Also, the fact that this is an index of construction costs of new housing, and does not reflect prices of existing housing makes this index rather unappealing.

The only source of data pertaining to the living costs of military personnel is the Naval Facilities Engineering Command (NAVFAC) data on family housing costs. NAVFAC performs a housing survey at each CONUS installation at least once every three years. A random sample of individuals is taken by rank, and their monthly housing expenditures (including utilities) are obtained. In the 1975 data, the average monthly housing

expenditures by rank and class of housing (rental, trailer, owner-occupied), along with the sample size for each rank and class of housing, are reported.

Since this is the only data available on an installation-by-installation basis, in the next section we consider how, and whether, this data should be used in implementing a GPA (or, more appropriately, a VHA, if only the housing component of pay is adjusted).



## REGIONAL VARIATION IN LIVING COSTS AND THE APPROPRIATE GPA INDEX

A major issue in GPA analysis is whether an overall price or cost-of-living index is the only basis for adjusting pay or whether a GPA based upon a specific commodity price index such as housing could be used. It would be agreed that if overall price indexes for all areas in which military installations are located were available, then a GPA made to RMC and based upon these indexes would bring about equality across areas in the purchasing power of RMC. Such an adjustment might be considered a "first-best" solution to the equity problem. However, if an overall price index for each area is not available, policy makers might resort to basing a GPA on what data is available. The question to be addressed here is whether a GPA based upon a specific commodity price index would eliminate completely, reduce, or increase the geographic variation in real pay. Numerical examples of each of these possibilities are provided and then the Family Budgets COL indexes are analyzed to see which case most likely describes the CONUS situation. Finally, an investigation is made into which specific commodity is the most likely candidate on which to base a GPA.

To begin with the numerical examples, assume that there are three geographic regions and two commodities, food and housing. Assume in each case that food and housing each occupy half of the consumer budget.<sup>1</sup>

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<sup>1</sup> It may be shown that an overall price index is a weighted average of the price indexes for the individual commodities included in the overall index, where the weights are the shares of the commodities in the total budget:

$$I_o = \sum_{i=1}^n W_i I_i$$

where  $I_o$  = overall price index,  $I_i$  = price index for the ith commodity category, and  $W_i$  = budget share for ith commodity.



Consider Case A below. In this example, each area has the same price index for both food and housing. The covariation between food and housing is "perfect," and the variance of the overall index is the same as the variance of each of the individual indexes.<sup>1</sup>

#### CASE A

<u>Price index</u>	<u>Region 1</u>	<u>Region 2</u>	<u>Region 3</u>
Food	102	100	98
Housing	102	100	98
Overall	102	100	98

If these were the area price indexes, it would obviously not matter whether a GPA is based upon the overall index or one of the two commodity price indexes. Second, implementation of a GPA which utilizes one of the commodity indexes and makes an adjustment only to that portion of income spent on the index commodity would be a move towards full equity but would not bring about full equity. In the example above, if a GPA were made to half of RMC and based on the housing (or food) indexes, one half of the geographic variation would be eliminated.<sup>2</sup>

<sup>1</sup>Formally, the variance of the overall index,  $V_o$ , is a linear function of the variances of the individual commodity indexes, the  $V_i$ 's, and the budget shares, the  $W_i$ 's. It may be shown that

$$V_o = \sum_{i=1}^n W_i^2 V_i + 2 \sum_{i \neq j} W_i W_j \text{COV}(I_i, I_j)$$

Covariance [ $\text{COV}(I_i, I_j)$ ] is a measure of the joint geographic variation in the indexes  $I_i$  and  $I_j$ . The reader is referred to any basic statistics text for computing formulas for variance and covariance. In Case A above,  $V_F = 4$ ,  $V_H = 4$ ,  $\text{COV}(F, H) = 4$ , and  $V_o = 4$ .

<sup>2</sup>We have not said how the GPA is to be implemented. In Case A, for example, the GPA could take the form of a 2 percent increase in the income of individuals in region 1, no adjustment to those in region 2, and a 2 percent reduction in the income of those in region 3. Or, it could take the form of a 4 percent increase in the incomes of those in region 1, a 2 percent increase to those in region 2, and no adjustment to those in region 3. Of course, the second method would be preferred by the inhabitants of the three regions, since everyone would be better off under the second method than the first. The propositions being established above are not altered by the manner in which the GPA is implemented.

Consider an opposite case, Case B. Here there is geographic variation in the price indexes of the two commodities, but no variation in the overall index. The price indexes are perfectly negatively correlated.

#### CASE B

<u>Price index</u>	<u>Region 1</u>	<u>Region 2</u>	<u>Region 3</u>
Food	102	100	98
Housing	98	100	102
Overall	100	100	100

In this case, one would know not to implement a GPA because there is no variation in RMC in real terms. It is clear that if one had knowledge of only one of the commodity indexes and implemented a GPA on the basis of this index, geographic variation in real RMC would be introduced where none previously existed. And, which area(s) benefit depends upon which index is chosen. To conclude, in the case where commodity prices are negatively correlated within geographic areas, basing a GPA on one of the commodity indexes rather than the overall index may not eliminate or reduce geographic variation in real RMC, but may in fact increase the variation.<sup>1</sup>

Consider a third case, Case C. Here the commodity price indexes vary together positively, but the variation in the housing price index is much larger than the variation in the food price index.<sup>2</sup>

#### CASE C

<u>Price index</u>	<u>Region 1</u>	<u>Region 2</u>	<u>Region 3</u>
Food	101	100	99
Housing	105	100	95
Overall	103	100	97

<sup>1</sup> In the example here,  $V_o = 0$ ,  $V_F = 4$ ,  $V_H = 4$ , but  $COV(F, H) = -4$ .

<sup>2</sup> In the example here,  $V_o = 9$ ,  $V_F = 1$ ,  $V_H = 25$ , but  $COV(F, H) = 5$ .

Several propositions may be made here. First, basing a GPA on either of the two indexes and making an adjustment to the proportion of RMC spent on that commodity will be a move towards full equity but will not totally eliminate the inequity. But, basing a GPA on the higher variation housing index and making an adjustment only to that portion of income spent on housing would eliminate more of the inequity than a GPA based on the food price index.<sup>1</sup>

The above propositions presume that the GPA based upon single commodity is made only to that portion of income spent on the commodity. Suppose, however, that a GPA based on the single commodity index is made to RMC. It is clear that such an adjustment will over-compensate individuals in higher cost areas if it is based on a single commodity index whose variation exceeds the variation in the overall price index. Thus, a GPA made to RMC and based upon the housing price index would over-correct for general price level differences. Those living in areas with high overall price levels would now have higher real income than those living in areas with lower overall price levels.

Three general rules may be stated here. First, as long as the covariation in commodity price indexes is positive, basing a GPA on one of those indexes and making an adjustment only to the proportion of RMC spent on that commodity will be a move towards full equity although full equity will not be achieved. Second, basing the GPA on a commodity whose index has a larger variation will be a greater move towards equity than a GPA based on a commodity whose index has smaller variation (again assuming the adjustment is made only to the portion of income spent on the commodity). Third, in general, commodities do not receive the same weight in the construction of the overall index. Other things equal, a greater move towards equity will be achieved if the commodity which has a larger share in the budget is selected.

An empirical question is which of these three cases fits the U.S. economy. Is the covariation in commodity price index across geographic areas positive or negative? And, if a single commodity price index is to be used, what would that best index commodity be (best in the sense that use of the commodity index would go further towards full equity than use of any alternative indexes)?

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<sup>1</sup>To give an example here, suppose the GPA takes the form of adjustments to incomes of those individual in region 1 and region 2 but none to those in region 3. If the housing index is used as the basis for adjustment and the adjustment is made to half of total income, region 1 would receive a 5 percent boost in income and region 2 would receive a 2.5 percent boost. If food index is used and the adjustment made to the portion of income spent on food and the adjustment would be 1 percent for region 1 and .5 percent for region 2.

To answer these questions, the Standard Family Budgets COL indexes were analyzed. While these indexes are not pure price indexes, they are highly correlated with pure price indexes and therefore are of use in answering these questions. Using the Autumn 1974 indexes, the correlations between each pair of indexes was computed at each level of living. The matrix of correlations at each level of living are presented in table 1.

As the reader may ascertain, almost all of the correlations between pairs of commodity indexes are positive. These positive correlations indicate that areas which have high prices for one commodity tend to have high prices for other commodities. There are only two cases in which correlations involving indexes other than the transportation index are negative, and neither of these is statistically significantly different from zero.<sup>1</sup> The fact that the commodity indexes in almost all cases are positively correlated lends credence to the view that basing a GPA on one of the individual commodity indexes and making an adjustment to the portion of income spent on the commodity will be a move towards equity.

Referring to the definition of variance in footnote 1 on page 6, the reader will note that (1) the variance of the overall index is positively related to the variance of each of the commodity indexes; and (2) those commodities with large budget shares ( $W_i$ 's) will contribute more to the variance of the overall index than those with small budget shares. Table 2 presents the standard deviation (square root of the variance) of each of the commodity indexes and their respective budget shares. Inspection of this table indicates that the main contributor to the variation in the overall index is the housing index.<sup>2</sup> This is true (1) because the geographic variation in housing costs is substantially larger than the geographic variation in any other commodity index, and (2) because housing has a larger share in the total budget than any other commodity.

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<sup>1</sup> The way the transportation index was constructed in the lower and intermediate budgets lead to the negative correlations involving this index. Low cost public transportation was given a large weight in this index in large metropolitan areas. Higher cost automobile transportation was given a larger weight in smaller urban areas. This method of constructing the transportation index almost guarantees negative correlations between this and other indexes. In the upper budget, where all transportation is by automobile, there are no negative correlations.

<sup>2</sup>Examining the lower budget, for example, the variance of the overall index is  $(5.26)^2 = 27.66$ . The direct contribution to overall index variance made by the housing index is  $(.191)^2 (13.67)^2 = 6.81$ . The contribution of the food index to overall variance is  $(.300)^2 (5.17)^2 = 2.40$ . The housing index accounts for one fourth of the variance of the overall index and accounts for almost three times as much of the variance in the overall index as does the food index. The other commodities contribute substantially less than the food index to overall index variance.



TABLE 1  
MATRIX OF CORRELATIONS: FAMILY BUDGETS COL INDEXES

	<u>Total budget</u>	<u>Consump. budget</u>	<u>Food</u>	<u>Rent</u>	<u>Mort.</u>	<u>Trans.</u>	<u>Cloth.</u>	<u>Personal</u>	<u>Medical</u>	<u>Other</u>
Lower budget										
Total Budget	1.0	.98	.70	.86		-.002	.39	.24	.39	.32
Consumption budget		1.0	.70	.87		.04	.38	.27	.41	.33
Food			1.0	.35		-.07	.13	.22	.12	.39
Rent				1.0		.02	.34	.15	.36	.23
Mortgage										
Transportation						1.0	-.009	-.40	-.12	-.71
Clothing							1.0	.32	-.01	.08
Personal care								1.0	.25	.62
Medical care									1.0	.24
Other consumption										1.0
Intermediate budget										
Total Budget	1.0	.96	.74	.72	.92	.10	.41	.36	.17	.54
Consumption budget		1.0	.77	.72	.94	.23	.38	.44	.24	.61
Food			1.0	.36	.64	-.03	.04	.20	-.41	.50
Rent				1.0	.64	.22	.43	.30	.42	.33
Mortgage					1.0	.16	.34	.33	.11	.46
Transportation						1.0	.21	.38	.13	.25
Clothing							1.0	.39	-.11	.27
Personal care								1.0	.22	.50
Medical care									1.0	.21
Other consumption										1.0
Upper budget										
Total budget	1.0	.93	.74	.76	.86	.49	.45	.28	.32	.71
Consumption budget		1.0	.79	.79	.91	.62	.43	.35	.41	.57
Food			1.0	.56	.57	.51	.19	.14	.26	.35
Rent				1.0	.64	.53	.38	.40	.50	.55
Mortgage					1.0	.48	.37	.28	.24	.53
Transportation						1.0	-.04	.29	.49	.27
Clothing							1.0	.09	.08	.35
Personal care								1.0	.31	.05
Medical care									1.0	.41
Other										1.0

TABLE 2  
STANDARD DEVIATIONS OF COL INDEXES AND BUDGET SHARES  
OF RESPECTIVE COMMODITIES  
(Autumn 1974)

	Lower Budget		Intermediate Budget		Upper Budget	
	Standard deviation	Budget share	Standard deviation	Budget share	Standard deviation	Budget share
Total budget	5.26	1.0	7.0	1.0	7.94	1.0
Consumption budget	5.11	.796	6.04	.759	6.42	.720
Food	5.17	.300	6.24	.248	6.11	.214
Housing <sup>a</sup>		.191		.226		.236
Rental	13.67	--	14.96	--	17.13	--
Mortgage	--	--	18.04	--	19.76	--
Transportation	9.42	.070	3.97	.081	5.12	.073
Clothing	6.89	.083	6.25	.076	5.87	.764
Medical care	9.81	.080	9.87	.022	7.07	.021
Other consumption	7.50	.045	6.76	.055	8.91	.062
Other items	--	.204	--	.241	--	.280

<sup>a</sup>For the purposes of this table, rental housing and owner-occupied housing were lumped together to obtain the budget share for housing. This share rises slightly with income in this table because a higher weight is given to owner-occupied housing expenditures at higher income levels.

The conclusions of the analysis here are twofold. First, given that the geographic covariance in commodity price indexes is positive, a GPA based on one of the commodity indexes would be a move towards equity as long as an adjustment is made only to the portion of income spent on the index commodity. Second, if a GPA is to be based on a single index commodity, the "best" index commodity appears to be housing. Geographic variation in housing costs appears to be the major contributor to the geographic variation in the overall price index.

There may be a more compelling reason for basing a GPA to military personnel on a housing price index. We suspect that if two separate price indexes for items other than housing were constructed for military personnel and for civilians, the index for military personnel would show less geographic variation. Military personnel and their families are provided many services on the installation free or for a nominal, geographically uniform, charge. A prime example here is medical care. As table 2 indicates, medical care has the second largest geographic variation of any item in the civilian COL indexes, but it would show very little variation in a military price index. In addition, many consumption items are purchased on the installation at geographically uniform prices. It has been pointed out to us by members of the QRMC staff that military post exchanges follow a national pricing policy for some items. These items which would go into a price index would also show little geographic variation. Our expectation, then, is that on the average there is less geographic variation in the prices paid by military personnel for non-housing items than the prices paid by civilians.

We have estimated that the variation in the housing price index accounts for approximately one fourth of the variation in the overall index. In an overall price index based upon the prices paid by military personnel, the proportion of the total variation accounted for by housing would be larger. Basing a GPA on an index of housing costs is even more appealing in the military case.

## CONSTRUCTION OF HOUSING COST INDEXES FOR CONUS MILITARY INSTALLATIONS AND ALTERNATIVE VARIABLE HOUSING ALLOWANCE PLANS

This section uses the 1975 NAVFAC installation housing expenditure data to construct housing cost indexes for 118 CONUS installations, and compares housing costs with RMC and the Basic Allowance for Quarters (BAQ). Then various ways of implementing a Variable Housing Allowance (VHA) using these indexes are considered, both under the current pays and allowances system and a salary system. Cost estimates of alternative VHA plans are made.

Before discussing the construction of the housing cost indexes, the CONUS average Monthly Housing Costs (MHC) of married personnel in 12 pay grades are compared with the RMC and BAQ received by married personnel in these pay grades. Comparisons are presented for January 1975 and January 1976. Table 3 presents the data used for these comparisons. The average MHC for each rank are from the January 1975 and January 1976 NAVFAC surveys, respectively. The RMC and BAQ amounts are those in effect during January 1975 and January 1976, respectively.

The right hand column of table 3 gives the weights used to construct the weighted average officer and weighted average enlisted BAQ, MHC, and RMC for the officer and enlisted ranks shown. In addition, the all personnel average values for BAQ, MHC, and RMC are constructed by weighting the officer averages by .1362 and the enlisted averages by .8638 and adding the corresponding amounts together.<sup>1</sup> From table 3 it is seen that officers spent on the average, about \$144 per month more than BAQ on housing in 1975 and \$174 more in 1976. Enlisted personnel spent \$73 more than BAQ in 1975 and \$84 more in 1976. Housing costs rose more than BAQ between 1975 and 1976.

Table 4 displays the ratio of MHC to BAQ and the ratio of MHC to RMC for the ranks given in table 3. Two important facts are evident from this table. Officers have higher MHC relative to BAQ than enlisted personnel. However, enlisted personnel spend a larger proportion of their RMC on housing than officers do. The apparent paradox of these two findings is reconciled by comparing BAQ with RMC for officers and enlisted personnel -- BAQ occupies a smaller share of officer RMC than enlisted RMC. It is also clear that MHC as a proportion of RMC falls as pay grade increases.

One important question is whether the expenditures on housing, as a fraction of income, are comparable for military personnel and civilians. The "base" from which a VHA plan is implemented will depend upon judgments about what fraction of pay military personnel

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<sup>1</sup>The officer (enlisted personnel) weights used reflect the proportion of CONUS officers (enlisted personnel) in the six paygrades listed which are in the given pay grades. The weights used to construct the all personnel amounts reflect the proportions of officers and enlisted to all personnel in these 12 ranks.



TABLE 3  
BAQ, RMC, AND MHC,  
JANUARY 1975 AND JANUARY 1976

	<u>Jan 1975 BAQ</u>	<u>Jan 1976 BAQ</u>	<u>Jan 1975 MHC</u>	<u>Jan 1976 MHC</u>	<u>Jan 1975 RMC</u>	<u>Jan 1976 RMC</u>	<u>Weights</u>
<b>Officer Grade</b>							
O6	273	286	485	556	2675	2820	.0553
O5	252	265	453	502	2207	2325	.1219
O4	227	239	405	457	1825	1919	.1993
O3	206	217	343	383	1500	1581	.3550
O2	185	195	279	303	1210	1271	.1437
O1	149	157	235	258	913	959	.1248
Weighted Officer Average	210	220	354	394	1600	1685	
<b>Enlisted Grade</b>							
E8	182	191	288	313	1276	1341	.0244
E7	170	179	262	288	1115	1170	.0855
E6	158	166	241	258	961	1001	.1506
E5	146	154	204	218	809	850	.2258
E4	128	134	176	187	695	731	.2970
E3	111	116	163	177	561	664	.2167
Weighted Enlisted Average	138	145	200	214	797	838	
All Personnel	148	155	221	239	906	953	

TABLE 4

MHC RELATIVE TO BAQ AND RMC AND BAQ RELATIVE TO RMC,  
JANUARY 1975 AND JANUARY 1976

	MHC/BAQ		MHC/RMC		BAQ/RMC
	Jan 1975	Jan 1976	Jan 1975	Jan 1976	Jan 1975 <sup>a</sup>
<b>Officer Grade</b>					
O6	1.777	1.944	.181	.197	.102
O5	1.798	1.894	.205	.216	.114
O4	1.784	1.912	.222	.238	.124
O3	1.665	1.765	.228	.242	.137
O2	1.508	1.554	.231	.238	.153
O1	1.577	1.643	.257	.269	.163
Weighted Officer Average	1.685	1.791	.221	.234	.131
<b>Enlisted Grade</b>					
E8	1.555	1.639	.222	.233	.143
E7	1.541	1.609	.235	.246	.152
E6	1.525	1.554	.251	.256	.164
E5	1.397	1.416	.252	.256	.180
E4	1.375	1.396	.253	.256	.184
E3	1.468	1.526	.291	.266	.198
Weighted Enlisted Average	1.449	1.476	.251	.256	.173
All Personnel	1.493	1.541	.244	.250	.162

<sup>a</sup>Share of BAQ in RMC unchanged between 1975 and 1976.

can reasonably be expected to spend housing, and such a fraction would presumably be derived by examining the housing expenditures of "comparable" groups of civilians.

The 1970 Census provides estimates of the ratio of housing costs to income for homeowners, while a 1973 Census survey provides estimates of the ratio of rental expenditures to income. Table 5 shows the 1970 Census findings for homeowners while table 6 shows the findings for renters. While the bounds on the income classes are not the same in tables 5 and 6, a comparison of income classes where the bounds overlap indicates that homeowners spend a slightly higher fraction of income on housing than do renters. Generally speaking, the difference appears to be less than 1 percent in the lower income classes, but is somewhat larger (1-2 percent) in the higher income classes.

Table 7 summarizes the data in tables 4, 5, and 6. Military personnel are compared with comparable income classes of civilians in this table. The data in table 7 seem to imply that military personnel spend more on housing than comparable income classes. Such a finding might be expected. To the extent that military personnel are moved more frequently than civilians, and are unable to lock themselves into long-term fixed mortgage payments (or rental contracts) while civilians are, this finding has a great deal of logical appeal.

We must caution, however, that these comparisons may overstate the difference. RMC will understate family income for military families in which the wife works or the military member has a second job. Therefore the MHC/RMC ratio will be overstated in comparison with civilian ratios, which are based on total family income. To the extent that military personnel receive services in-kind which civilians must pay for (e.g., medical services), omission of such items from the military income measure may also bias upward the military housing cost-income ratio in comparison with that of civilians.<sup>1</sup>

Our somewhat inconclusive conclusion is that military personnel appear to spend a larger fraction of income on housing than comparable groups of civilians, but that the comparisons presented in table 7 overstate the true difference. Since full military income data are unavailable for military families, we are unable to compute the MHC/income ratio for military personnel that allows for an unbiased comparison with civilians.

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<sup>1</sup> Numbers calculated by the QRMC subsequent to the writing of this report provide evidence that RMC significantly understates total military family income. The QRMC examined a sample of 1974 tax returns of married military personnel. Using the ranks and weights in table 3, it was estimated that for 1974 RMC understated the family income of officers by 14 percent and the family income of enlisted personnel by 27 percent. (The sample included personnel stationed overseas as well as in CONUS, so these percentages should be treated with some caution.)

TABLE 5  
SELECTED HOUSING COSTS AS A PERCENT OF INCOME, HOMEOWNERS<sup>a</sup>

<u>Income Class</u>	<u>Percent</u>
2,000 - 3,999	45
4,000 - 5,999	31
6,000 - 7,999	24
8,000 - 9,999	20
10,000 - 12,499	18
12,500 - 14,999	16
15,000 - 19,999	14
20,000 - 24,999	13
25,000 and over	11

<sup>a</sup>Selected Housing Costs = mortgage payments + utilities + insurance  
+ real estate taxes.

Source: Reference 8.

TABLE 6  
RENTAL EXPENDITURES AS A PERCENT OF INCOME<sup>a</sup>

<u>Income Class</u>	<u>Percent</u>
3,000 - 4,999	32.4
5,000 - 6,999	24.4
7,000 - 9,999	19.5
10,000 - 14,999	15.3
15,000 - 24,999	11.3
25,000 and over	9.6

<sup>a</sup>Rental expenditures include utilities payments.

Source: Reference 9.



TABLE 7

MONTHLY HOUSING COSTS AS A PERCENT OF INCOME,  
MILITARY PERSONNEL AND COMPARABLE INCOME CLASSES OF CIVILIANS

<u>Rank</u>	<u>Military Personnel</u>	<u>Civilians</u>	
	<u>MHC<sup>a</sup> RMC</u>	<u>Rental Percent</u>	<u>Homeowner Percent</u>
O6	.181	9.6	11
O5	.205	9.6	11
O4	.222	11.3	13
O3	.228	11.3	14
O2	.231	15.3	16
O1	.257	15.3	18
All Officers	.221	11.3	14
E8	.222	11.3	14
E7	.235	15.3	16
E6	.251	15.3	18
E5	.252	19.5	20
E4	.253	19.5	20
E3	.291	24.4	24
All Enlisted	.251	19.5	20
All Personnel	.244	15.3	18

<sup>a</sup> January 1975 MHC/RMC.

## CONSTRUCTION OF THE HOUSING COST INDEXES

Using the ranks and the weights in table 3, we constructed the average MHC of officers and enlisted personnel at 118 CONUS installations.<sup>1</sup> Then, we constructed an all personnel MHC at each installation by weighting the officer and enlisted MHC by the fractions .1362 and .8638, respectively. Then, an index of housing costs (HCI) for each installation was constructed for all personnel, officers, and enlisted personnel by dividing the respective MHC by the CONUS average of the respective group. Table 8 reports the results for all personnel while tables 9 and 10 report the results for officers and enlisted personnel. These tables rank the 118 installations by MHC from highest to lowest and, in addition, provide the following information: (1) the fraction of personnel who are at the given installation, (2) the cumulative fraction of personnel with MHC equal to or greater than that at the given installation, (3) the MHC/BAQ ratio and (4) the MHC/RMC ratio.

Our procedure for constructing the MHC for officers, enlisted personnel, and all personnel respectively, which uses constant weights in constructing MHC at different installations, has two virtues. First, since constant weights are used, the only source of variation from installation to installation will be variation in housing costs. If variable weights were used (where the weights reflect the actual force distribution at each installation), the weights themselves would be an added source of variation and therefore would make inferences from the computed numbers less meaningful. Second, the by-paygrade MHCs are in many cases based upon sample sizes which are rather small. The problem here is that the smaller is the sample size on which MHC is based, the larger will be the variation in the estimate of that rank's MHC and the less efficient MHC will be as a measure of the "true" mean housing cost for that rank. In constructing an overall MHC for each installation, our weighting scheme eliminates much of the random variation in the by-rank MHCs by placing the largest weights on ranks in which MHC is based upon large sample size (e.g., O3 and E6). Since the variation in MHC due to random sampling will be smaller in these grades, this weighting scheme eliminates much of the random variation in MHC and gives one more confidence that the differences in MHC across installations are based upon true differences in housing costs rather than sampling variation.

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<sup>1</sup>The average expenditure within pay grades on all types of housing rather than just owner-occupied or rental housing was used in order to maximize the number of installations for which housing cost indexes could be constructed. Had indexes been constructed using only renter data, say, the indexes could have been based only on the expenditures of individuals in several enlisted (E4, E5, and E6) pay grades and several officer grades (O1, O2, and O3). This is because at many installations renters (or homeowners) were not surveyed in many pay grades. To obtain indexes which used all the sample data the indexes by necessity had to be based on expenditures on all types of housing.

TABLE 8  
RANKING OF INSTALLATIONS BY ALL PERSONNEL MHC

Installation	MHC <sup>a</sup>	PPI <sup>b</sup>	CPP <sup>c</sup>	MHC <sup>d</sup> Index	MHC <sup>e</sup> BAQ	MHC <sup>f</sup> RMC
BOSTON MA	267	0.0005	0.0005	1.2126	1.8061	0.2943
WAR-PHI PA	265	0.0013	0.0018	1.2065	1.7970	0.2928
LA AFS CA	265	0.0012	0.0030	1.2060	1.7963	0.2927
NEW YOR NY	265	0.0020	0.0050	1.2033	1.7922	0.2920
BOL-WAS DC	265	0.0069	0.0119	1.2028	1.7916	0.2919
MOHESTE FL	262	0.0047	0.0167	1.1893	1.7715	0.2867
HANSCOM MA	261	0.0016	0.0183	1.1879	1.7694	0.2863
ANDREWS MD	259	0.0067	0.0251	1.1757	1.7512	0.2854
BAYONNE NJ	258	0.0006	0.0256	1.1747	1.7497	0.2851
WASH DC DC	256	0.0145	0.0401	1.1654	1.7359	0.2829
MIL DIS DC	254	0.0112	0.0513	1.1544	1.7194	0.2802
SANFRAN CA	252	0.0305	0.0818	1.1458	1.7067	0.2781
FT BELV VA	249	0.0063	0.0881	1.1314	1.6853	0.2746
PEASE NH	248	0.0037	0.0918	1.1269	1.6786	0.2735
EL TORO CA	246	0.0091	0.1009	1.1165	1.6631	0.2710
LOWRY CO	245	0.0091	0.1100	1.1122	1.6567	0.2700
LAKEHUR NJ	243	0.0016	0.1116	1.1045	1.6452	0.2681
FT MONM NJ	243	0.0033	0.1149	1.1024	1.6421	0.2676
PHILADE PA	241	0.0070	0.1219	1.0968	1.6337	0.2662
SCHENEC NY	241	0.0014	0.1232	1.0956	1.6319	0.2659
FITZSAH CO	240	0.0018	0.1251	1.0922	1.6268	0.2651
FT DETR MD	240	0.0006	0.1256	1.0916	1.6259	0.2649
NEW LON CN	239	0.0106	0.1363	1.0851	1.6163	0.2634
PATRICK FL	239	0.0030	0.1393	1.0846	1.6155	0.2633
WREEDAH DC	238	0.0035	0.1428	1.0809	1.6100	0.2624
KIRKLAN NM	237	0.0037	0.1464	1.0795	1.6079	0.2620
CLEVELA OH	237	0.0002	0.1467	1.0768	1.6039	0.2614
NEW BRU ME	236	0.0030	0.1497	1.0730	1.5983	0.2604
SANDIEG CA	236	0.0919	0.2417	1.0712	1.5956	0.2600
FT JACK SC	235	0.0150	0.2566	1.0693	1.5928	0.2595
FT SMER IL	235	0.0615	0.2581	1.0667	1.5889	0.2589
FT ORD CA	234	0.0187	0.2768	1.0637	1.5844	0.2582
FT MCPH GA	233	0.0017	0.2785	1.0613	1.5809	0.2576
OFFUTAB NB	233	0.0101	0.2866	1.0607	1.5799	0.2574
DALLAS TX	233	0.0009	0.2896	1.0563	1.5763	0.2569
FT HEAD MD	232	0.0114	0.3010	1.0554	1.5720	0.2562
PORTSNO NH	232	0.0068	0.3017	1.0551	1.5716	0.2561
ORLANDO FL	232	0.0115	0.3132	1.0535	1.5691	0.2557
MCDJLL FL	231	0.0056	0.3188	1.0496	1.5634	0.2548
CECIL F FL	230	0.0064	0.3251	1.0457	1.5576	0.2535
DXRIVER MD	229	0.0037	0.3288	1.0412	1.5508	0.2527
CARLISL PA	229	0.0005	0.3294	1.0399	1.5489	0.2524
JAXVILL FL	229	0.0073	0.3367	1.0396	1.5485	0.2523
NORFOLK VA	229	0.0801	0.4168	1.0391	1.5477	0.2522
FT DIX NJ	228	0.0090	0.4258	1.0378	1.5458	0.2519
PORTLAN OR	227	0.0065	0.4263	1.0328	1.5384	0.2507
USARTKC MI	226	0.0015	0.4278	1.0284	1.5317	0.2496
LACKLAN TX	225	0.0176	0.4454	1.0237	1.5248	0.2485
KANSAS MO	224	0.0007	0.4462	1.0182	1.5166	0.2471
POPE AB NC	224	0.0033	0.4495	1.0179	1.5161	0.2471
GEORGAB CA	223	0.0046	0.4541	1.0130	1.5089	0.2459
CASTLAB CA	222	0.0050	0.4591	1.0113	1.5064	0.2455
ROCKISL IO	222	0.0002	0.4593	1.0099	1.5043	0.2451
FT DEVE MA	222	0.0059	0.4653	1.0097	1.5040	0.2451
GRANFOR ND	222	0.0050	0.4703	1.0084	1.5020	0.2448
CHARLES SC	222	0.0186	0.4889	1.0078	1.5011	0.2446
SEATTLE WA	221	0.0013	0.4902	1.0063	1.4988	0.2442
FT LEE VA	221	0.0059	0.4961	1.0056	1.4979	0.2441
EGLINAB FL	220	0.0106	0.5067	0.9979	1.4864	0.2422
FT BRAG NC	217	0.0350	0.5417	0.9884	1.4722	0.2399
NEWPORT RI	217	0.0041	0.5457	0.9873	1.4706	0.2396



TABLE 8 (Cont'd)

Installation	MHC <sup>a</sup>	PPI <sup>b</sup>	CPP <sup>c</sup>	MHC <sup>d</sup> Index	MHC <sup>e</sup> BAQ	MHC <sup>f</sup> RMC
RICKEAB OH	216	0.0027	0.5484	0.9817	1.4623	0.2383
FT EUST VA	216	0.0074	0.5559	0.9808	1.4608	0.2380
SCOTT IL	215	0.0040	0.5599	0.9753	1.4528	0.2367
GRIFFIS NY	214	0.0041	0.5640	0.9746	1.4517	0.2366
MCCORD WA	214	0.0046	0.5686	0.9726	1.4488	0.2361
PENSACO FL	213	0.0096	0.5782	0.9700	1.4449	0.2354
FT CARB CO	210	0.0193	0.5975	0.9543	1.4214	0.2316
FT SAMH TX	209	0.0088	0.6064	0.9523	1.4184	0.2311
FT GORD GA	208	0.0148	0.6211	0.9441	1.4063	0.2292
ST LOUI MO	207	0.0009	0.6220	0.9428	1.4042	0.2288
HILL AB UT	207	0.0032	0.6252	0.9397	1.3997	0.2281
MCCONAB KA	206	0.0038	0.6290	0.9381	1.3972	0.2277
FT CAMP KY	206	0.0191	0.6481	0.9365	1.3949	0.2273
LITRKAB AK	206	0.0062	0.6542	0.9362	1.3945	0.2272
NEW ORL LA	205	0.0020	0.6562	0.9302	1.3856	0.2258
OAKDALE PA	204	0.0002	0.6564	0.9284	1.3828	0.2253
FT HARR IN	203	0.0036	0.6601	0.9223	1.3738	0.2239
LEMOORE CA	203	0.0059	0.6659	0.9212	1.3721	0.2236
BREMERT WA	202	0.0047	0.6706	0.9191	1.3691	0.2231
FT LEWI WA	202	0.0219	0.6925	0.9188	1.3686	0.2230
FT HUAC AR	202	0.0048	0.6974	0.9181	1.3675	0.2228
FT MONR VA	202	0.0012	0.6986	0.9180	1.3674	0.2228
WARREN WY	201	0.0037	0.7023	0.9158	1.3641	0.2223
FT HOOD TX	200	0.0404	0.7427	0.9105	1.3561	0.2210
KESSLAB MS	200	0.0139	0.7566	0.9098	1.3552	0.2208
BEALEAB CA	200	0.0047	0.7613	0.9093	1.3545	0.2207
TINKER OK	199	0.0036	0.7648	0.9056	1.3489	0.2196
WHIDISL WA	199	0.0052	0.7701	0.9052	1.3483	0.2197
GULFPDR MS	198	0.0049	0.7749	0.8982	1.3379	0.2180
CANNON NM	197	0.0044	0.7793	0.8971	1.3362	0.2177
VANDENB CA	197	0.0046	0.7840	0.8935	1.3309	0.2169
CHERRY NC	196	0.0091	0.7930	0.8931	1.3303	0.2168
GRISOM IN	196	0.0027	0.7957	0.8931	1.3302	0.2168
ENGLAND LA	195	0.0029	0.7986	0.8872	1.3215	0.2153
CAMPLEJ NC	195	0.0314	0.8300	0.8869	1.3210	0.2153
MAHSTR MT	195	0.0048	0.8348	0.8857	1.3193	0.2150
EDWARDS CA	195	0.0035	0.8383	0.8854	1.3189	0.2149
WURTSMI MI	195	0.0033	0.8416	0.8844	1.3173	0.2146
CHASE F TX	194	0.0016	0.8432	0.8838	1.3165	0.2145
TWNJEP CA	193	0.0035	0.8467	0.8758	1.3045	0.2126
FT BENN GA	192	0.0157	0.8625	0.8736	1.3012	0.2120
FT LEAV KA	192	0.0029	0.8654	0.8730	1.3003	0.2119
ABERDEE MD	191	0.0054	0.8708	0.8662	1.2903	0.2102
CHANUTE IL	190	0.0098	0.8806	0.8617	1.2835	0.2091
MERIDIA MS	190	0.0030	0.8836	0.8615	1.2831	0.2091
KINGSVL TX	189	0.0019	0.8855	0.8601	1.2811	0.2088
MEMPHIS TN	187	0.0095	0.8950	0.8513	1.2680	0.2066
FT BLIS TX	186	0.0126	0.9075	0.8476	1.2625	0.2057
USAMISC AL	186	0.0037	0.9112	0.8458	1.2599	0.2053
FT RILE KA	186	0.0154	0.9266	0.8443	1.2576	0.2049
FT KNOX KY	185	0.0184	0.9450	0.8407	1.2522	0.2040
CRAIGAB AL	181	0.0019	0.9469	0.8209	1.2228	0.1993
FT RUCK AL	179	0.0055	0.9524	0.8114	1.2066	0.1969
FT SILL OK	178	0.0149	0.9673	0.8090	1.2050	0.1964
ALTUS OK	176	0.0042	0.9715	0.7993	1.1906	0.1940
FT WOOD MO	169	0.0121	0.9836	0.7659	1.1409	0.1859
FT POLK LA	165	0.0164	1.0000	0.7508	1.1183	0.1822

<sup>a</sup>MHC = Monthly Housing Cost<sup>b</sup>PPI = Percent of Personnel at Installation<sup>c</sup>CPP = Cumulative Percent of Personnel<sup>d</sup>MHC Index = Installation MHC divided by national average MHC<sup>e</sup>MHC/BAQ = Ratio of MHC to (monthly) BAQ<sup>f</sup>MHC/RMC = Ratio of MHC to (monthly) RMC.



TABLE 9

## RANKING OF INSTALLATIONS BY OFFICER MHC

Installation	MHC	PPI	CPP	MHC Index	MHC BAQ	MHC RMC
NEW YOR NY	456	0.0027	0.0027	1.3021	2.1743	0.2847
WAR-PHI PA	449	0.0018	0.0045	1.2837	2.1435	0.2806
BOSTON MA	438	0.0015	0.0060	1.2510	2.0090	0.2735
BAYONNE NJ	434	0.0009	0.0069	1.2403	2.0712	0.2712
HANSCOM MA	430	0.0064	0.0133	1.2272	2.0493	0.2683
BOL-WAS DC	427	0.0273	0.0406	1.2206	2.0382	0.2668
MIL DIS DC	413	0.0404	0.0810	1.1801	1.9705	0.2580
WASH DC DC	410	0.0470	0.1279	1.1718	1.9567	0.2562
LAKEHUR NJ	408	0.0011	0.1291	1.1668	1.9484	0.2551
ANDREWS MD	407	0.0110	0.1401	1.1618	1.9401	0.2540
PORTSNO NH	403	0.0009	0.1410	1.1568	1.9216	0.2516
EL TORO CA	402	0.0074	0.1484	1.1476	1.9162	0.2509
CLEVELA OH	401	0.0003	0.1487	1.1452	1.9124	0.2504
SANDIEG CA	400	0.0575	0.2062	1.1437	1.9097	0.2500
LA AFS CA	396	0.0065	0.2128	1.1313	1.8892	0.2473
WREEDAH DC	391	0.0090	0.2218	1.1171	1.8653	0.2442
PHILADE PA	391	0.0075	0.2293	1.1160	1.8636	0.2440
HOMESTE FL	389	0.0032	0.2326	1.1121	1.8570	0.2431
FT MONH NJ	388	0.0040	0.2366	1.1084	1.8508	0.2423
SANFRAN CA	387	0.0227	0.2593	1.1071	1.8487	0.2420
FT BELV VA	387	0.0059	0.2652	1.1062	1.8472	0.2418
JAXVILL FL	387	0.0084	0.2736	1.1059	1.8467	0.2418
DXRIVER MD	386	0.0046	0.2782	1.1039	1.8433	0.2413
FT ORD CA	384	0.0124	0.2906	1.0976	1.8328	0.2400
NEW LON CN	384	0.0082	0.2988	1.0974	1.8325	0.2399
CECIL F FL	381	0.0054	0.3042	1.0877	1.8163	0.2378
PEASE NH	379	0.0038	0.3080	1.0829	1.8082	0.2367
MCDILL FL	374	0.0062	0.3141	1.0695	1.7859	0.2368
NORFOLK VA	374	0.0587	0.3729	1.0683	1.7839	0.2336
NEW BRU ME	373	0.0041	0.3769	1.0657	1.7796	0.2330
PATRICK FL	372	0.0043	0.3813	1.0620	1.7733	0.2322
DALLAS TX	371	0.0006	0.3819	1.0603	1.7705	0.2318
EGLINAR FL	371	0.0130	0.3949	1.0591	1.7685	0.2315
SCHENEC NY	370	0.0008	0.3956	1.0583	1.7673	0.2314
CHARLES SC	370	0.0125	0.4081	1.0574	1.7656	0.2312
FT MEAD MD	368	0.0152	0.4234	1.0502	1.7537	0.2296
FT DETR MD	365	0.0011	0.4245	1.0437	1.7428	0.2282
LOWRY CO	365	0.0063	0.4308	1.0423	1.7405	0.2279
FT DEVE MA	365	0.0056	0.4364	1.0416	1.7393	0.2277
ORLANDO FL	363	0.0024	0.4388	1.0373	1.7321	0.2268
FT MCPH GA	361	0.0045	0.4433	1.0302	1.7203	0.2252
FT DIX NJ	360	0.0064	0.4497	1.0293	1.7188	0.2250
FT SHER IL	358	0.0028	0.4525	1.0222	1.7069	0.2235
OFFUTAB NB	357	0.0203	0.4728	1.0211	1.7051	0.2232
USARTKC MI	357	0.0026	0.4754	1.0197	1.7027	0.2229
FITZSAH CO	357	0.0045	0.4798	1.0196	1.7027	0.2229
OAKDALE PA	354	0.0006	0.4805	1.0120	1.6898	0.2212
GEORGAB CA	351	0.0040	0.4844	1.0031	1.6750	0.2193
FT SAMH TX	348	0.0161	0.5005	0.9938	1.6595	0.2173
FT CARS CO	347	0.0110	0.5115	0.9917	1.6561	0.2168
KANSASC MO	346	0.0008	0.5123	0.9869	1.6513	0.2162
CANNON NM	345	0.0029	0.5152	0.9858	1.6462	0.2155
NEWPORT RI	345	0.0110	0.5262	0.9844	1.6438	0.2152
RICKLAB OH	344	0.0026	0.5289	0.9822	1.6401	0.2147
CHERRY NC	343	0.0063	0.5351	0.9805	1.6373	0.2144
FT LEE VA	343	0.0100	0.5451	0.9803	1.6369	0.2143
ST LOUI MO	343	0.0028	0.5478	0.9796	1.6357	0.2142
FT JACK SC	342	0.0047	0.5526	0.9768	1.6311	0.2135
PENSACO FL	341	0.0172	0.5697	0.9755	1.6290	0.2133
CASTLAB CA	341	0.0046	0.5743	0.9737	1.6260	0.2129
SCOTT IL	339	0.0091	0.5834	0.9696	1.6191	0.2120

TABLE 9 (Cont'd)

Installation	MHC	PPI	CPP	MHC Index	MHC BAQ	MHC RMC
FT BRAG NC	339	0.0260	0.6113	0.9692	1.6185	0.2119
BEALEAB CA	339	0.0045	0.6158	0.9689	1.6178	0.2118
CHASE F TX	338	0.0026	0.6184	0.9647	1.6108	0.2109
LITRKAB AK	337	0.0073	0.6257	0.9640	1.6097	0.2107
NEW ORL LA	337	0.0030	0.6287	0.9629	1.6079	0.2105
CARLISL PA	332	0.0026	0.6313	0.9499	1.5862	0.2077
LACKLAN TX	332	0.0104	0.6417	0.9498	1.5860	0.2076
PORTLAN OR	332	0.0063	0.6420	0.9478	1.5827	0.2072
POPE AB NC	332	0.0037	0.6457	0.9472	1.5817	0.2071
WHIDISL WA	331	0.0057	0.6515	0.9468	1.5810	0.2070
ROCKISL IO	331	0.0013	0.6527	0.9458	1.5794	0.2068
GRIFFIS NY	329	0.0051	0.6579	0.9407	1.5708	0.2057
GRANFOR ND	328	0.0061	0.6640	0.9365	1.5639	0.2047
SEATTLE WA	327	0.0012	0.6652	0.9352	1.5617	0.2045
MERIDIA MS	325	0.0026	0.6678	0.9277	1.5492	0.2028
ENGLAND LA	324	0.0020	0.6698	0.9265	1.5472	0.2026
CAMPLEJ NC	323	0.0162	0.6859	0.9227	1.5408	0.2017
KIRKLAN NM	322	0.0081	0.6940	0.9202	1.5366	0.2012
MCCONAB KA	322	0.0044	0.6985	0.9190	1.5345	0.2009
KESSLAB MS	319	0.0090	0.7075	0.9123	1.5234	0.1995
FT HARR IN	317	0.0052	0.7127	0.9069	1.5144	0.1983
MCCORD WA	317	0.0044	0.7171	0.9063	1.5133	0.1981
FT KNOX KY	317	0.0187	0.7358	0.9062	1.5133	0.1981
MEMPHIS TN	317	0.0035	0.7393	0.9051	1.5114	0.1979
FT EUST VA	317	0.0068	0.7461	0.9045	1.5103	0.1977
FT LEAV KA	316	0.0130	0.7591	0.9041	1.5097	0.1977
HILL AB UT	315	0.0045	0.7636	0.8995	1.5021	0.1967
LEMOORE CA	314	0.0047	0.7683	0.8962	1.4965	0.1959
FT LEWI WA	313	0.0183	0.7867	0.8946	1.4939	0.1956
WURTSMI MI	313	0.0031	0.7898	0.8940	1.4928	0.1954
BREHERT WA	311	0.0032	0.7930	0.8892	1.4848	0.1944
TINKER OK	311	0.0044	0.7974	0.8887	1.4839	0.1943
FT MONR VA	310	0.0046	0.8020	0.8865	1.4803	0.1938
CRAIGAB AL	309	0.0054	0.8074	0.8841	1.4762	0.1933
VANDENB CA	309	0.0053	0.8127	0.8840	1.4761	0.1933
ABERDEE MO	309	0.0074	0.8201	0.8833	1.4750	0.1931
EDWARDS CA	309	0.0044	0.8246	0.8823	1.4734	0.1929
GULFPOR MS	308	0.0013	0.8258	0.8794	1.4685	0.1923
KINGSVL TX	308	0.0029	0.8287	0.8789	1.4676	0.1921
FT BENN GA	308	0.0202	0.8489	0.8786	1.4671	0.1921
FT RILE KA	304	0.0132	0.8621	0.8696	1.4521	0.1901
FT HOOD TX	304	0.0264	0.8685	0.8692	1.4515	0.1900
TWINEP CA	304	0.0019	0.8904	0.8690	1.4511	0.1900
WARREN WY	304	0.0048	0.8952	0.8686	1.4504	0.1899
FT BLIS TX	303	0.0138	0.9090	0.8667	1.4472	0.1895
FT GORD GA	303	0.0096	0.9166	0.8666	1.4470	0.1894
ALTUS OK	303	0.0040	0.9226	0.8653	1.4450	0.1892
GRISSOM IN	296	0.0033	0.9259	0.8466	1.4136	0.1851
MAHMSTR MT	295	0.0061	0.9320	0.8436	1.4086	0.1844
FT RUCK AL	293	0.0117	0.9437	0.8365	1.3968	0.1829
USAMISC AL	291	0.0048	0.9485	0.8305	1.3868	0.1816
FT CAMP KY	291	0.0153	0.9638	0.8301	1.3862	0.1815
CHANUTE IL	290	0.0034	0.9672	0.8298	1.3856	0.1814
FT HUAC AR	290	0.0074	0.9746	0.8287	1.3838	0.1812
FT WOOD MO	279	0.0051	0.9797	0.7978	1.3322	0.1744
FT SILL OK	274	0.0159	0.9956	0.7833	1.3080	0.1712
FT POLK LA	236	0.0044	1.0000	0.6745	1.1264	0.1475

TABLE 10

## RANKING OF INSTALLATIONS BY ENLISTED MHC

Installation	MHC	PPI	CPP	MHC Index	MHC BAQ	MHC RMC
LA AFS CA	245	0.0004	0.0004	1.2236	1.7739	0.3071
HOMESTE FL	242	0.0050	0.0054	1.2077	1.7509	0.3031
BOSTON MA	240	0.0004	0.0057	1.1989	1.7382	0.3009
BOL-WAS DC	239	0.0038	0.0095	1.1949	1.7324	0.2999
WAR-PHI PA	236	0.0012	0.0107	1.1822	1.7139	0.2967
ANDREWS MD	235	0.0061	0.0168	1.1766	1.7058	0.2953
HANSCOM MA	235	0.0009	0.0177	1.1741	1.7022	0.2947
NEW YOR NY	235	0.0019	0.0196	1.1730	1.7006	0.2944
WASH DC DC	232	0.0095	0.0291	1.1608	1.6829	0.2913
SANFRAN CA	231	0.0317	0.0608	1.1536	1.6725	0.2895
BAYONNE NJ	231	0.0005	0.0613	1.1536	1.6725	0.2895
MIL DIS DC	229	0.0067	0.0680	1.1444	1.6591	0.2872
PEASE NH	227	0.0036	0.0716	1.1363	1.6474	0.2852
FT BELV VA	227	0.0064	0.0780	1.1356	1.6463	0.2850
LOWRY CO	226	0.0095	0.0875	1.1288	1.6365	0.2833
KIRKLAN NM	224	0.0030	0.0905	1.1207	1.6249	0.2813
FITZSAH CO	222	0.0014	0.0919	1.1095	1.6086	0.2785
EL TORO CA	221	0.0094	0.1013	1.1052	1.6023	0.2774
SCHENEC NY	221	0.0014	0.1028	1.1031	1.5993	0.2769
FT DETR MD	220	0.0005	0.1033	1.1021	1.5978	0.2766
FT MONM NJ	220	0.0032	0.1065	1.0981	1.5920	0.2756
FT JACK SC	218	0.0165	0.1230	1.0922	1.5835	0.2741
PHILADE PA	218	0.0069	0.1299	1.0887	1.5785	0.2732
PATRICK FL	218	0.0028	0.1327	1.0882	1.5776	0.2731
LAKEHUR NJ	217	0.0017	0.1344	1.0846	1.5724	0.2722
NEW LON CN	216	0.0110	0.1454	1.0790	1.5643	0.2708
FT SHER IL	215	0.0013	0.1467	1.0763	1.5605	0.2701
NEW BRU ME	214	0.0029	0.1495	1.0724	1.5547	0.2691
OFFUTAB NB	214	0.0086	0.1581	1.0689	1.5497	0.2683
WREEDAH DC	214	0.0027	0.1608	1.0683	1.5488	0.2681
FT MCPH GA	213	0.0013	0.1621	1.0673	1.5474	0.2679
CARLISL PA	212	0.0002	0.1623	1.0621	1.5399	0.2666
ORLANDO FL	211	0.0129	0.1752	1.0553	1.5300	0.2649
CLEVELA OH	211	0.0002	0.1754	1.0552	1.5299	0.2648
DALLAS TX	211	0.0010	0.1764	1.0551	1.5297	0.2648
FT MEAD MD	211	0.0108	0.1872	1.0541	1.5283	0.2646
PORTLAN OR	211	0.0005	0.1877	1.0537	1.5277	0.2645
FT ORD CA	210	0.0197	0.2074	1.0517	1.5248	0.2640
SANDIEG CA	210	0.0972	0.3046	1.0486	1.5202	0.2632
LACKLAN TX	208	0.0187	0.3233	1.0415	1.5100	0.2614
MCDILL FL	208	0.0055	0.3288	1.0415	1.5100	0.2614
FT DIX NJ	208	0.0094	0.3382	1.0376	1.5043	0.2604
POPE AB NC	207	0.0032	0.3414	1.0348	1.5003	0.2597
CECIL F FL	206	0.0065	0.3479	1.0315	1.4955	0.2589
NORFOLK VA	206	0.0834	0.4313	1.0284	1.4910	0.2581
USARTKC MI	206	0.0013	0.4327	1.0282	1.4907	0.2580
PORTSNO NH	205	0.0007	0.4334	1.0261	1.4876	0.2575
GRANFOR ND	205	0.0048	0.4382	1.0257	1.4871	0.2574
ROCKISL IO	205	0.0001	0.4383	1.0251	1.4862	0.2573
KANSASC MO	205	0.0007	0.4390	1.0237	1.4842	0.2569
SEATTLE WA	205	0.0013	0.4403	1.0234	1.4837	0.2568
DXRIVER MD	204	0.0036	0.4439	1.0213	1.4806	0.2563
CASTLAB CA	204	0.0051	0.4490	1.0192	1.4777	0.2558
JAXVILL FL	204	0.0072	0.4562	1.0187	1.4769	0.2557
GEORGAB CA	203	0.0047	0.4609	1.0133	1.4690	0.2543
FT LEE VA	202	0.0053	0.4662	1.0101	1.4644	0.2535
FT EUST VA	200	0.0075	0.4737	0.9994	1.4489	0.2508
FT DEVE MA	200	0.0060	0.4797	0.9985	1.4476	0.2506
CHARLES SC	198	0.0195	0.4992	0.9916	1.4376	0.2489
FT BRAG NC	198	0.0360	0.5353	0.9912	1.4371	0.2488
MCCHORD WA	198	0.0047	0.5399	0.9865	1.4332	0.2481



TABLE 10 (Cont'd)

Installation	MHC	PPI	CPP	MHC Index	MHG BAO	MHG- RMC
NEWPORT RI	197	0.0030	0.5429	0.9856	1.4290	0.2474
GRIFFIS NY	196	0.0039	0.5469	0.9816	1.4231	0.2464
RICKEAB OH	196	0.0027	0.5496	0.9792	1.4196	0.2457
EGLINAB FL	196	0.0102	0.5598	0.9786	1.4187	0.2456
SCOTT IL	195	0.0032	0.5631	0.9745	1.4128	0.2446
PENSACO FL	193	0.0084	0.5715	0.9661	1.4006	0.2425
FT CAMP KY	193	0.0197	0.5912	0.9635	1.3969	0.2418
FT GORD GA	193	0.0156	0.6067	0.9632	1.3964	0.2417
HILL AB UT	190	0.0029	0.6097	0.9465	1.3751	0.2380
FT CARS CO	188	0.0206	0.6303	0.9416	1.3651	0.2363
MCCONAB KA	188	0.0037	0.6340	0.9410	1.3643	0.2362
FT HUAC AR	188	0.0044	0.6384	0.9405	1.3635	0.2360
FT SAMH TX	188	0.0077	0.6462	0.9384	1.3605	0.2355
ST LOUI MO	186	0.0006	0.6467	0.9303	1.3487	0.2335
WARREN WY	185	0.0035	0.6503	0.9265	1.3433	0.2325
LITRKAB AK	185	0.0060	0.6563	0.9262	1.3428	0.2325
LEMOORE CA	185	0.0060	0.6623	0.9258	1.3422	0.2323
BREHERT WA	185	0.0049	0.6672	0.9251	1.3412	0.2322
FT MONR VA	185	0.0007	0.6679	0.9244	1.3402	0.2320
FT HARR IN	185	0.0034	0.6713	0.9242	1.3400	0.2320
FT LEWI WA	185	0.0225	0.6938	0.9232	1.3385	0.2317
FT HOOD TX	184	0.0425	0.7363	0.9196	1.3332	0.2308
NEW ORL LA	184	0.0018	0.7382	0.9189	1.3322	0.2306
TINKER OK	182	0.0034	0.7416	0.9080	1.3164	0.2279
KESSLAB MS	181	0.0146	0.7562	0.9069	1.3148	0.2276
GRISSOM IN	181	0.0026	0.7588	0.9037	1.3102	0.2268
OAKDALE PA	181	0.0002	0.7590	0.9030	1.3092	0.2266
GULFPOR MS	180	0.0054	0.7645	0.9012	1.3066	0.2262
MALMSTR MT	179	0.0046	0.7691	0.8952	1.2978	0.2247
VANDENB CA	179	0.0045	0.7736	0.8939	1.2960	0.2243
WHIDISL WA	178	0.0051	0.7787	0.8914	1.2924	0.2237
BEALEAB CA	178	0.0047	0.7835	0.8906	1.2913	0.2235
EDWARDS CA	177	0.0033	0.7868	0.8841	1.2817	0.2219
WURTSMI MI	176	0.0033	0.7901	0.8795	1.2751	0.2207
TWININEP CA	175	0.0038	0.7939	0.8755	1.2693	0.2197
CAMPLEJ NC	175	0.0338	0.8276	0.8748	1.2682	0.2195
ENGLAND LA	175	0.0030	0.8307	0.8741	1.2673	0.2194
CANNON NM	174	0.0046	0.8353	0.8704	1.2618	0.2184
FT BENN GA	174	0.0150	0.8503	0.8700	1.2614	0.2184
CHANUTE IL	174	0.0108	0.8611	0.8684	1.2589	0.2179
CHERRY P NC	173	0.0095	0.8706	0.8667	1.2566	0.2175
FT LEAV KA	172	0.0014	0.8720	0.8623	1.2501	0.2164
ABERDEE MD	172	0.0051	0.8771	0.8594	1.2459	0.2157
CHASE F TX	172	0.0015	0.8786	0.8593	1.2459	0.2157
KINGSVL TX	171	0.0017	0.8803	0.8528	1.2364	0.2140
USAMISC AL	170	0.0035	0.8838	0.8480	1.2294	0.2128
MERIDIA MS	168	0.0031	0.8869	0.8410	1.2193	0.2111
FT BLIS TX	168	0.0124	0.8992	0.8403	1.2182	0.2109
FT RILE KA	167	0.0157	0.9149	0.8352	1.2109	0.2096
MEMPHIS TN	167	0.0104	0.9253	0.8343	1.2096	0.2094
FT KNOX KY	164	0.0183	0.9437	0.8205	1.1896	0.2059
FT SILL OK	163	0.0148	0.9584	0.8140	1.1802	0.2043
FT RUCK AL	160	0.0045	0.9630	0.8025	1.1635	0.2014
CRAIGAB AL	160	0.0014	0.9644	0.8015	1.1620	0.2011
ALTUS OK	156	0.0042	0.9686	0.7791	1.1296	0.1955
FT POLK LA	154	0.0182	0.9868	0.7699	1.1162	0.1932
FT WOOD MO	151	0.0132	1.0000	0.7553	1.0950	0.1895



Examining the results in tables 8, 9, and 10, it is seen that the all personnel housing cost indexes range from .76 (Ft. Polk, La.) to 1.21 (Boston, Mass.). It may be pointed out that at every CONUS installation personnel spend more than BAQ on housing. The excess of housing costs over BAQ at different installations ranges between \$26 and \$246 for officers and between \$13 and \$107 for enlisted personnel. Clearly there is a great disparity in housing costs of personnel at different installations.

The officer indexes show more variation than the enlisted or all personnel indexes, with the officer index ranging from .67 (Ft. Polk, La.) to 1.30 (New York City). The officer and enlisted indexes are generally consistent with each other; that is, installations that have a high officer MHC also have a high enlisted MHC. The simple correlation between the two indexes is .82. Obviously there is a very high correspondence between the all personnel and enlisted indexes since the enlisted index receives a very high weight (.8638) in the construction of the all personnel index.

## ALTERNATIVE VARIABLE HOUSING ALLOWANCE PLANS

This section discusses how the housing cost indexes constructed in the last section might be used to implement a variable housing allowance (VHA). In discussing how a VHA might be implemented, several issues have to be considered. First, how should installations be grouped for the purposes of a VHA? Second, what should be the proper base for a VHA adjustment? In the current pays and allowances system policy-makers would have the choice of adjusting BAQ or some fraction of RMC whereas in a salary system the adjustment would have to be based on some fraction of salary. Third, should there be separate adjustments for officers and enlisted personnel, or, more generally, should there be a sliding adjustment factor which varies by level of RMC? This section addresses these questions, considering alternative groupings of installations and alternative VHA plans, and estimating the cost of these alternative plans.

### REASONS AND CRITERIA FOR GROUPING

Consider first the question of grouping. We suggest that grouping installations into a rather small number of categories may be more desirable than making a different adjustment at each CONUS installation. There are several reasons for this suggestion. First, the data may still contain "sampling errors" which will lead to incorrect adjustments at some installations if an adjustment is made directly with the indexes constructed above. Second, a plan with a relatively small number of categories may be easier to administer. Third, and more speculatively, a plan with only a small number of possible adjustments may be more acceptable to personnel. Several criteria govern how many categories there should be, and these are considered below.

Several examples of possible sampling errors may be pointed out. Looking at table 5, the MHC for personnel at the Arminster Naval facility in North Philadelphia is \$265, while the MHC for personnel at the South Philadelphia Naval facility is \$241. While all of the difference here may be due to real differences in housing costs between the North and South Philadelphia housing markets, some may be due to random sampling errors. A second example is provided by installations in the Washington, D.C. metropolitan area. Most of the MHCs for the D.C. area installations are very similar except for the Walter Reed Army Hospital. This MHC (\$238) is \$11 below that of the next closest D.C. area (\$249 for Ft. Belvoir). Again, some of the differences in MHC between the D.C. area installations may be due to random sampling. As a third example, Ft. Bragg, N.C. and Pope AFB, N.C. are contiguous installations, yet the Pope MHC (\$224) is \$7 higher than the Ft. Bragg MHC (\$217). Again, sampling error is a possible cause of this difference. The reader may find yet other examples of disparities in MHC between seemingly similar installations.

To eliminate, or at least reduce, the effect of these possible sampling errors, installations may be grouped into categories and adjustments made at each installation according to the category into which the installation falls. Two possible groupings suggest

themselves. One is to establish categories on the basis of absolute dollar differences in MHC, and the other is to establish categories on the basis of percent differences in MHC. If categorization is by absolute dollar differences in MHC, the number of categories will grow over time if inflation occurs and housing costs rise. If it is desired that the number of categories not increase after the implementation of the plan, a categorization based upon percentage changes in MHC is preferable.

On the assumption that a categorization procedure based on percentage changes in the MHC index is to be used, we now consider various categorization procedures. The basic issue is, how many categories there should be. Several criteria govern how many categories are preferable. First, the fewer categories there are (and, consequently, the larger the range on which each category is based), the administratively simpler the plan will be. Second, the categories should be established on the basis of what are felt to be significant real differences in MHC. Too narrow a range on the categories will result in different VHAs being paid at different installations, even though the differences in MHC are "unimportant." On the other hand, the ranges should not be so broad that installations with very dissimilar housing costs are placed in the same category. Judgments will need to be made as to what constitutes an "important" difference in housing costs. Third, the fewer the categories there are, the greater will be the likelihood that an installation falls into the category in which it "really" belongs. That is, the chance that sampling errors will result in an installation being misplaced is reduced.

These criteria suggest that the number of categories should be as small as possible consistent with judgment as to what constitutes "important" changes in housing costs. We have constructed three alternative categorizations, which are based upon 5 percent, 10 percent, and 15 percent increments in the all personnel MHC index. These three plans are presented in tables 11, 12, and 13. The tables provide the number of categories generated by each plan, the range on MHC and the MHC index in each category, and the percentage of CONUS personnel who are estimated to fall in each category.<sup>1</sup>

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<sup>1</sup>The percentage of personnel in each category is actually the percentage of personnel at the 118 installations (with known HCIs) which fall into the category. The personnel at these 118 installations comprise 74 percent of the June 30, 1975 CONUS force. It is unlikely that these distributions will be altered significantly when the HCIs of all installations become available.



TABLE 11

A VHA PLAN WHERE INSTALLATIONS ARE GROUPED ON THE BASIS OF  
FIVE PERCENT INCREMENTS IN ALL PERSONNEL MHC INDEX

<u>Category</u>	<u>MHC index</u>	<u>Range on MHC</u>	<u>Percent of personnel</u>
1	120 & above	265 & above	1.19
2	115-119	254-269	3.94
3	110-114	243-253	6.35
4	105-109	235-242	19.83
5	100-104	221-231	18.29
6	95-99	209-220	11.03
7	90-95	199-208	16.37
8	85-89	187-198	12.49
9	80-84	178-186	7.23
10	75-79	177 & below	3.27

TABLE 12

A VHA PLAN WHERE INSTALLATIONS ARE GROUPED ON THE BASIS OF  
TEN PERCENT INCREMENTS IN ALL PERSONNEL MHC INDEX

<u>Category</u>	<u>MHC index</u>	<u>Range on MHC</u>	<u>Percent of personnel</u>
1	120 & above	265 & above	1.19
2	110-119	243-262	10.30
3	100-109	221-241	38.12
4	90-99	199-220	27.40
5	80-89	178-198	19.72
6	70-79	177 & below	3.27



TABLE 13

A VHA PLAN WHERE INSTALLATIONS ARE GROUPED ON THE BASIS OF FIFTEEN PERCENT INCREMENTS IN THE ALL PERSONNEL MHC INDEX

<u>Category</u>	<u>MHC index</u>	<u>Range on MHC</u>	<u>Percent of personnel</u>
1	115 & above	253 & above	5.13
2	100 - 114	221 - 252	44.48
3	85 - 99	187 - 220	39.89
4	84 & below	186 & below	10.50

Looking at the plans in tables 11, 12, and 13, the range on MHC within each of the categories is (approximately) \$10 in the 5 percent increment, \$20 in the 10 percent increment, and \$30 in the 15 percent increment categorizations. We feel that the grouping based upon 5 percent changes in the MHC index is too narrow. There are 10 categories here and some installations are likely to be "misplaced" (i.e., be in categories other than the one in which they should truly be if MHC were known without error). In addition, only a \$5 change is required, on average, to move installations from one category to another. Such small differences in monthly housing costs are too small to distinguish between.

A categorization based upon either 10 percent or 15 percent changes in the MHC index is preferable. First, the number of categories is reasonably small, 6 in the former case and 4 in the latter case. Second, the categories are sufficiently broad that the likelihood of "misplacing" installations is small. Third, categories are established on the basis of "important" changes in housing costs. That is, an installation's MHC would have to change by \$10 or \$15, on average, for it to move from one category to another. Smaller changes in MHC would not induce movement.

A categorization which has larger than 15 percent ranges in each category is probably too broad. There is little saving in terms of reducing the number of categories below the number based upon 15 percent increments in MHC index. More important, installations which appear to be very dissimilar in terms of MHC will be lumped together here.

The category that each CONUS installation would fall into under the 10 percent, and 15 percent increment plans is provided in appendix B. When an installation's HCI is unknown, we "estimate" the category into which it is likely to fall. By looking at the known HCIs of installations in similar geographic proximity together with information on the population density of the area. A categorization of installations under the 5 percent

increment plan is not provided because estimating the exact category that each installation with an unknown HCI would fall into is too speculative to be worth the effort. Housing cost data at the omitted installations are necessary if the 5 percent plan is selected.<sup>1</sup>

One policy consideration is separate treatment of officers and enlisted personnel. Using the three categorizations of installations above, which are based on the all personnel MHC index, we computed the following items separately for officers and enlisted personnel: (1) average MHC, (2) average MHC/BAQ, and (3) average MHC/RMC.<sup>2</sup> In addition, the frequency distributions of officers and enlisted personnel across categories in the three categorizations were tabulated. Tables 14 and 15 present these items for officers and enlisted personnel. There are significant differences in the distribution of officers and enlisted personnel across categories in the different categorizations. Larger percentages of officers are located in the higher categories (higher housing cost areas).

#### ALTERNATIVE VHA ADJUSTMENTS

The question of what should be adjusted is more difficult. Under the current pays and allowances system, the likely basis for implementing a VHA is BAQ. That is, a VHA could be appended to the current system by categorizing installations and establishing VHA rates such that these rates plus BAQ cover the median housing costs in each category of installations. An alternative method would be to base the VHA on some fraction of RMC (e.g., .20) rather than BAQ. In this system, installations would be categorized and the VHA in dollars would be the difference between MHC in each category and  $b$  (RMC) where  $b$  is the chosen fractional basis of RMC (e.g., .20). If a salary system rather than the current pays and allowances system were in effect, a VHA would have to be based on some fraction of salary, for in this system there would be no separate allowance such as BAQ on which to base the adjustment.

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<sup>1</sup> Appendix C provides a listing of the CONUS installations for which no housing cost data were available.

<sup>2</sup> We used the all personnel index to categorize installations. If the enlisted personnel and officers were categorized on the basis of their own MHC indexes, there would be cases in which a given installation would fall into different categories in the officers and enlisted categorizations. We felt that it was better to impose the restriction that officers and enlisted personnel at a given installation fall into the same category, even if, within categories, officers and enlisted personnel receive different adjustments.

TABLE 14  
AVERAGE OFFICER MHC, MHC/BAQ, AND MHC/RMC  
ALTERNATIVE CATEGORIZATIONS

<u>Category</u>	<u>Average MHC</u>	<u>MHC/BAQ</u>	<u>MHC/RMC</u>	<u>Percent of personnel</u>
Categorization A				
1	432	2.06	.270	3.98
2	410	1.96	.256	10.89
3	386	1.84	.241	5.12
4	368	1.76	.230	11.38
5	355	1.69	.222	21.17
6	339	1.61	.211	12.43
7	319	1.51	.198	14.56
8	310	1.48	.193	10.76
9	300	1.43	.187	8.35
10	260	1.24	.162	1.35
Categorization B				
1	432	2.06	.270	3.98
2	394	1.88	.246	16.01
3	374	1.78	.233	32.46
4	324	1.54	.202	27.01
5	308	1.47	.192	19.11
6	260	1.24	.162	1.35
Categorization C				
1	422	2.01	.263	14.87
2	376	1.79	.235	37.58
3	319	1.52	.199	37.85
4	288	1.37	.180	9.70



TABLE 15  
AVERAGE ENLISTED MHC, MHC/BAQ, AND MHC/RMC  
ALTERNATIVE CATEGORIZATIONS

<u>Category</u>	<u>Average MHC</u>	<u>MHC/BAQ</u>	<u>MHC/RMC</u>	<u>Percent of personnel</u>
Categorization A				
1	239	1.73	.299	.77
2	234	1.70	.293	2.87
3	224	1.62	.281	6.55
4	214	1.55	.268	14.78
5	204	1.48	.255	24.20
6	195	1.41	.244	10.79
7	184	1.33	.230	16.62
8	173	1.25	.217	12.74
9	164	1.19	.205	7.06
10	153	1.11	.192	3.56
Categorization B				
1	239	1.73	.299	.77
2	229	1.66	.287	9.42
3	209	1.51	.262	38.93
4	190	1.37	.238	27.41
5	170	1.23	.213	19.80
6	153	1.11	.192	3.56
Categorization C				
1	234	1.70	.293	3.64
2	211	1.53	.265	45.53
3	184	1.33	.231	40.15
4	161	1.17	.202	10.62



In the context of the current pays and allowances system, introducing the VHA using BAQ as the basis has two merits. First, there is a belief among military personnel that BAQ should cover housing costs, but in fact it does not. A system where VHA plus BAQ covers housing costs would achieve this goal. Second, under consideration by the QRMC is a policy of charging a fair market rental value for military housing. If a VHA were implemented and the "price" of military housing were BAQ plus the VHA, the goal of charging a fair market rental for such housing could be achieved.

Under the current system, basing a VHA on BAQ has the difficulty that BAQ is a rather small share of RMC, 16.2 for all personnel (see table 4). Some people have argued that there are more "housing dollars" currently being provided in RMC than are reflected in current BAQ rates. Their arguments are considered below when several VHA plans are discussed.

Another problem is the choice of the proper basis for a VHA which has to do with the question of separate treatment of officers and enlisted personnel. As may be seen from table 4, MHC/BAQ is higher for officers than enlisted personnel. However, MHC as a fraction of RMC is higher for enlisted personnel. If a plan which uses BAQ as a basis is implemented and officers and enlisted personnel each receive separate VHA adjustments based on their own BAQ rates, officers will receive a larger VHA supplement (relative to BAQ) than enlisted personnel. However, if some fraction of RMC (salary) serves as the basis, and officers and enlisted personnel each receive a VHA payment which, in percentage terms, is the percentage excess of monthly housing costs over some specified portion of RMC (salary), enlisted personnel will receive a proportionately larger VHA than officers (unless the specified fraction is lower for officers than enlisted personnel).<sup>1</sup>

We now present six prototype VHA plans, three of which use BAQ or some other measure of the housing dollars available in RMC as a basis, and three of which use a pre-selected fraction of RMC (.20 is assumed for illustrative purposes) as a basis. Installations are grouped into categories based on 5, 10, or 15 percent increments in the all personnel MHC index and then the required VHA adjustment factor is computed for the installations in each category. The separate adjustments that officers and enlisted personnel would receive are presented. In the following section, cost estimates of the various plans are provided.

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<sup>1</sup> If it is determined that the "appropriate fraction" on which to base a VHA is the fraction of income that comparable income classes of civilians spend on housing, the fraction would be set lower for officers than enlisted personnel.

Before analyzing these plans, we return to a problem mentioned above, namely that current BAQ rates may understate the total housing dollars provided in RMC. It can be argued that this is true for two reasons: (1) there is a tax advantage that accrues to the individual because of the non-taxability of BAQ, and at least some portion of this tax advantage should be counted as housing dollars, and (2) some of the 1971, 1972, and 1973 pay raises, all of which raised only Base Pay, were intended to cover rising housing costs. Table 16 shows the dollars associated with housing in January 1975 RMC under alternative assumptions as to how the tax advantage is computed and whether or not part of the 1971-73 pay raises are considered dollars associated with housing. Table 17 shows, for officers, enlisted personnel, and all personnel, respectively, the share of housing dollars in RMC under various assumptions about how these dollars should be computed. These shares will be useful in deciding what fractional portion of RMC is the fair and appropriate measure to be used under a salary system.

TABLE 16  
DOLLARS IN MARRIED RMC ASSOCIATED WITH HOUSING,  
UNDER ALTERNATIVE ASSUMPTIONS

Rank	HD 1	HD 2	HD 3	HD 4	HD 5	HD 6
O6	272.70	415.88	483.31	346.24	402.38	306.77
O5	252.00	354.14	411.56	307.24	357.05	283.68
O4	227.40	304.79	354.21	270.30	314.13	256.73
O3	206.40	269.33	313.00	242.40	280.17	232.66
O2	185.40	230.62	268.01	214.31	249.06	210.00
O1	149.40	180.23	209.45	169.18	196.61	172.98
Officer Average	209.60	278.15	323.25	248.43	288.16	237.07
E8	181.80	225.95	262.58	207.09	240.67	206.40
E7	170.40	204.79	238.00	192.59	223.82	194.14
E6	158.40	189.19	219.46	175.77	204.26	181.38
E5	146.40	176.41	205.01	162.25	188.60	168.53
E4	128.10	154.93	180.05	142.13	165.17	150.24
E3	110.70	133.12	154.70	122.17	141.98	126.67
Enlisted Average	137.95	166.20	193.09	153.31	178.17	159.07
All Personnel	147.70	181.43	210.46	166.25	193.15	169.69

SOURCE: QRM/C

DEFINITIONS:

HD 1 = January 1975 BAQ rates

HD 2 = HD 1 plus tax advantage computed at marginal tax rates

HD 3 = HD 2 plus adjustment to reflect what BAQ would have been if BAQ had risen at same rate as Basic Pay between 1971 and 1974

HD 4 = HD 1 plus tax advantage evaluated at average tax rates

HD 5 = HD 4 plus pay raise factor as in HD 5

HD 6 = what BAQ would have been in January 1975 had 1971 BAQ rates grown at same rate as Base Pay between 1971 and 1975 (no imputed tax advantage here)

TABLE 17  
THE SHARE OF HOUSING DOLLARS IN RMC  
ALTERNATIVE DEFINITIONS<sup>a</sup>

	<u>HD 1</u>	<u>HD 2</u>	<u>HD 3</u>	<u>HD 4</u>	<u>HD 5</u>	<u>HD 6</u>
Officer	.131	.174	.202	.155	.180	.148
Enlisted	.173	.208	.242	.192	.224	.200
All personnel	.162	.200	.232	.183	.213	.187

<sup>a</sup> Computed from table 16 and table 3.

Let us now present the plans based on BAQ or one of the other measures of housing dollars in RMC. For each plan and each measure of housing dollars, the VHA adjustment factor for each category of installations is  $(MHC - HD)/HD$ , where HD is the given measure of housing dollars and MHC is the average MHC for the given category. This adjustment factor when multiplied by the given measure of housing dollars, gives the VHA required to equalize housing costs and housing dollars for the given category of installations. Table 18 presents the adjustment factors under the assumption that all personnel will receive the same adjustment. These adjustment factors are based on the all personnel MHC and all personnel housing dollars. Tables 19 and 20 present separate adjustment factors for officers and enlisted personnel where the adjustment factors for each group are based on that group's MHC and that group's housing dollars.

Let us examine the plan based upon 10 percent increments in the all personnel MHC index. Assume that officers and enlisted personnel are to be treated separately. From table 19 it is seen that, using the HD 1 measure of housing dollars, officers at installations in category 1 require a VHA which is equal to 1.06 times HD 1 (January 1975 BAQ) to equalize housing costs with housing dollars. From table 20, the enlisted personnel at the category 1 installations require a VHA equal to .73 times HD 1 (January 1975 BAQ) to equalize housing costs and housing dollars. The adjustment factors for other categories and plans and measures of housing dollars may be interpreted similarly.

What measure of housing dollars is the most appropriate? While this question cannot be answered definitively, we suggest that the HD 2 or HD 4 measures yield the housing dollars that, as a proportion of RMC, are closer to the dollars that comparable civilian income classes actually spend on housing than the other measures. For example, the HD 2 measure of housing dollars is .174 percent of officer RMC and .208 percent of enlisted



TABLE 18  
VHA ADJUSTMENT FACTORS FOR ALL PERSONNEL,  
VARIOUS MEASURES OF HOUSING DOLLARS

<u>Category</u>	<u>HD 1</u>	<u>HD 2</u>	<u>HD 3</u>	<u>HD 4</u>	<u>HD 5</u>	<u>HD 6</u>
5% Categorization						
1	.79	.46	.26	.59	.37	.54
2	.75	.43	.23	.56	.34	.50
3	.68	.37	.18	.49	.29	.44
4	.60	.31	.13	.43	.23	.38
5	.53	.25	.07	.36	.17	.32
6	.45	.18	0	.29	.11	.27
7	.38	.12	0	.23	.06	.19
8	.30	.07	0	.17	0	.13
9	.23	0	0	.09	0	.06
10	.16	0	0	0	0	0
10% Categorization						
1	.79	.46	.26	.59	.37	.55
2	.71	.38	.19	.51	.30	.47
3	.56	.27	.10	.39	.20	.35
4	.42	.15	0	.26	.08	.22
5	.27	.04	0	.13	0	.10
6	.16	0	0	0	0	0
15% Categorization						
1	.76	.43	.24	.56	.35	.51
2	.60	.30	.12	.42	.22	.37
3	.38	.12	0	.22	0	.18
4	.19	0	0	0	0	0



TABLE 19

VHA ADJUSTMENT FACTORS FOR OFFICERS,  
VARIOUS MEASURES OF HOUSING DOLLARS

<u>Category</u>	<u>HD 1</u>	<u>HD 2</u>	<u>HD 3</u>	<u>HD 4</u>	<u>HD 5</u>	<u>HD 6</u>
5% Categorization						
1	1.06	.55	.34	.74	.50	.82
2	.96	.47	.27	.65	.42	.73
3	.84	.39	.19	.55	.34	.62
4	.76	.32	.14	.48	.28	.55
5	.69	.27	.10	.43	.23	.50
6	.61	.22	.05	.36	.18	.34
7	.51	.14	0	.28	.10	.34
8	.48	.11	0	.25	.07	.31
9	.43	.08	0	.20	.04	.27
10	.24	0	0	.05	0	.10
10% Categorization						
1	1.06	.55	.34	.74	.50	.82
2	.88	.42	.22	.59	.37	.66
3	.78	.34	.16	.50	.30	.58
4	.54	.16	0	.30	.12	.37
5	.47	.11	0	.24	.07	.30
6	.24	0	0	.05	0	.10
15% Categorization						
1	1.01	.52	.30	.70	.70	.78
2	.79	.35	.16	.51	.30	.59
3	.52	.14	0	.28	.11	.35
4	.37	.04	0	.16	0	.22

TABLE 20

VHA ADJUSTMENT FACTORS FOR ENLISTED PERSONNEL,  
VARIOUS MEASURES OF HOUSING DOLLARS

<u>Category</u>	<u>HD 1</u>	<u>HD 2</u>	<u>HD 3</u>	<u>HD 4</u>	<u>HD 5</u>	<u>HD 6</u>
5% Categorization						
1	.73	.44	.24	.55	.34	.50
2	.70	.41	.21	.52	.31	.47
3	.62	.35	.16	.46	.26	.41
4	.55	.29	.11	.40	.20	.35
5	.48	.23	.06	.33	.14	.28
6	.41	.17	0	.27	.10	.22
7	.33	.10	0	.20	.03	.16
8	.25	.04	0	.13	0	.09
9	.19	0	0	.07	0	.03
10	.11	0	0	0	0	0
10% Categorization						
1	.73	.44	.23	.55	.34	.50
2	.66	.38	.19	.49	.29	.44
3	.51	.26	.08	.36	.17	.31
4	.37	.17	0	.24	.07	.19
5	.23	.02	0	.11	0	.07
6	.11	0	0	0	0	0
15% Categorization						
1	.70	.40	.21	.53	.31	.47
2	.53	.27	.09	.38	.18	.33
3	.33	.10	0	.20	.03	.16
4	.17	0	0	.05	0	0

RMC. Civilian families with incomes comparable to the average officer RMC spend between 11.3 and 14 percent of income on housing whereas civilian families with incomes comparable to the average enlisted RMC spend between 19.5 and 20 percent of RMC on housing. The HD 2 measure of housing dollars thus gives amounts which are slightly higher than what similar civilian families spend on housing. However, RMC understates somewhat total military family income, and we suspect that if this total income could be observed, the HD 2 measure of housing dollars would be very close to what comparable civilian groups spend on housing.

The HD 1 measure of housing dollars, current BAQ rates, as a proportion of RMC is lower than what comparable civilian income groups spend on housing in spite of the fact that RMC understates military family income. We feel, therefore, that current BAQ rates are too low a base from which to implement a VHA. On the other hand, the HD 3 and HD 5 measures of housing dollars appear to overstate available housing dollars. Even if total military family income were observable, we suspect that these measures of housing dollars, as a proportion of income, would yield ratios which are higher than the share of housing in civilian family budgets. Data on total military family income would allow us to verify this hypothesis.

One more point about these prototype plans may be noted. If a plan is based on HD 1 (1974 BAQ rates) and the VHA is a non-taxable allowance, the VHA plan will equalize the after-tax dollars available for housing for personnel in different geographic areas. But, if the plan is based on one of the other, more stringent measures of housing dollars, the plan will not completely equalize after-tax housing dollars (even if the VHA is non-taxable) since some of these dollars are taxable.

Now let us turn to plans which are based on some fraction of RMC or salary rather than some measure of housing dollars. In these plans the VHA adjustment factor is defined as,

$$k_i = \frac{(MHC_i - bRMC)}{RMC}$$

where:  $b$  = base fraction

$MHC_i$  = MHC at ith category of installations

The VHA adjustment factor  $k_i$  is simply the percentage excess of MHC over some base fraction of RMC (or salary in a salary system). The base fraction of RMC (or salary) is the fraction of RMC associated with housing as previously defined. The amount of VHA is simply  $k_i \times RMC$ . Assuming  $b = .20$ , table 21 presents  $k_i$  for officers and enlisted under the 3 alternative categorizations of installations.

Under the 10% categorization plan, officers at installations in category 1 would receive a VHA equal to 7 percent of RMC, whereas enlisted personnel at the same installations would receive a VHA equal to 9.9 percent of RMC. The adjustment factors for other categories and categorizations may be interpreted similarly.



TABLE 21

RMC ADJUSTMENT FACTORS BASED ON VHA PLAN  
WHOSE BASE IS 20 PERCENT OF RMC

<u>Category</u>	<u>Officers</u>	<u>Enlisted</u>
5% Categorization		
1	.070	.099
2	.056	.093
3	.041	.081
4	.030	.068
5	.022	.055
6	0	.044
7	0	.030
8	0	.017
9	0	0
10	0	0
10% Categorization		
1	.070	.099
2	.046	.087
3	.033	.062
4	0	.038
5	0	.013
6	0	0
15% Categorization		
1	.063	.093
2	.035	.065
3	0	.031
4	0	0



The adjustment factors presented in table 21 presume that the basis for adjustment,  $.20 \times \text{RMC}$ , is the same for both officers and enlisted personnel. Other adjustment factors for officers and enlisted personnel which are based on a different fraction of RMC could be easily derived. We have not presented such plans here for the sake of brevity.

In the current pays and allowances system, the VHA would probably be a tax free allowance, whereas in a salary system it could be taxable. Comparison of a VHA under the two systems is complicated slightly by the difference in tax treatment. However, we may easily derive the VHA dollars that must be paid under each system in order for the after-tax VHA dollars to be identical. Assume that RMC under the pays and allowances system is the same as salary (S) under a salary system. Assume the VHA is based upon 20 percent of either RMC or S. In addition, assume a proportional income tax rate  $t$ .<sup>1</sup> Define  $k_p, i$  as the VHA adjustment factor at the  $i$ th category of installations under a pays and allowances system and  $k_s, i$  as the VHA adjustment factor at the  $i$ th category under a salary system. The after-tax VHA dollars available to individuals at the  $i$ th category under each system are,

$$\text{VHA}_{p,i} = k_{p,i} (\text{MHC} - .20 \text{ RMC})$$

$$\text{VHA}_{s,i} = k_{s,i} (1 - t) (\text{MHC} - .2 S)$$

Since  $\text{RMC} = S$ ,  $k_{s,i}$  must equal  $k_{p,i} / (1 - t)$  in order for  $\text{VHA}_{p,i}$  to equal  $\text{VHA}_{s,i}$ .

Let us give a simple example. Suppose  $\text{RMC} = S = \$1,000$  per month. The base for the VHA is  $.2 \text{ RMC} = .2 S = \$200$  per month. Suppose also that  $\text{MHC} = \$250$  per month, so that housing costs exceed the dollars available for housing by \$50 per month. Under a pays and allowances system, the VHA adjustment factor,  $k_{p,i}$ , is simply  $.05 \text{ RMC} = \$50$  per month. Under a salary system the adjustment factor  $k_{s,i}$  required to provide the individual with \$50 of after-tax VHA is

$$\frac{.05}{(1 - t)} \cdot S = \frac{\$50}{(1 - t)}$$

Thus, if the tax rate is .2,

$$k_{s,i} = \frac{\$50}{.8} = \$62.50.$$

<sup>1</sup> Under a progressive tax system,  $t$  would be the marginal tax rate.

The simple result, then, is that before-tax the VHA dollars that must be paid under the salary system to equal the VHA dollars paid under the pays and allowances exceed these latter dollars by a factor of  $(1/1 - t)$ . These same conclusions would hold if one were contrasting a non-taxable VHA allowance with a fully taxable allowance.

#### COST OF ALTERNATIVE VHA PLANS

This section estimates the costs of the alternative VHA plans presented above. Before presenting these estimates, a few words must be said about the method by which a VHA plan will be implemented. The discussion here presumes that the VHA will be introduced into the current system as a separate allowance.

If the VHA becomes an additional allowance, it probably cannot be implemented in such a manner that total pays and allowances are held constant. The plan will not be implemented by giving a VHA to personnel at installations where housing costs exceed the VHA base and lowering one of the pays or allowances, say BAQ, at installations where housing costs fall below the VHA base.

If the VHA is introduced as a new allowance with other components of pay unchanged, the VHA may have a substantial budgetary impact. The budgetary impact will depend upon whether the introduction of a VHA affects the total amount of future pay raises. If the VHA is integrated into future pay raises such that the total amount of these raises is not affected then the costs estimated below will be more apparent than real.

We calculated the annual costs of alternative VHA plans. Our estimate of the annual cost of a plan based on BAQ, or HDL, is \$635 million. Plans based on other more stringent measures of housing dollars would cost less. For illustrative purposes we will walk the reader step by step through the calculation of the cost of the plan based on BAQ. The costs of other plans are derived similarly.

Table 22 provides the data used to calculate the cost of the plan based on BAQ. The first step was to calculate the CONUS average VHA adjustment factor by summing over the categories of installations, the product of the percentage of personnel in each category and the VHA adjustment factor for the category.<sup>1</sup> The resulting CONUS average adjustment factor was .67 for officers and .41 for enlisted personnel. The reader is reminded that these factors are based on housing costs of married personnel. We assume that in the absence of data on single personnel the adjustment factor will be the same for both. Next, for each officer-enlisted-marital status cell, average BAQ was multiplied by the average adjustment factor to give the CONUS average annual CONUS VHA per capita.

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<sup>1</sup> We calculated the average VHA adjustment factor under the 5%, 10%, and 15% categorizations and they were virtually the same in all three cases. Hence, the total cost of the plan will not be affected by particular categorization chosen.

TABLE 22  
CALCULATION OF THE COST OF VHA PLAN  
WHICH USES BAQ AS THE BASE

	Officers		Enlisted	
	Married	Single	Married	Single
Average BAQ	\$209.60	\$157.70	\$137.95	\$ 91.97
Average adjustment factor	.67	.67	.41	.41
Average monthly VHA	\$141	\$106	\$ 57	\$ 38
Average annual VHA	\$1692	\$1272	\$684	\$456
June 30, 1975 CONUS force	232,202 Officers		1,337,128 enlisted	
World-wide % married (single)	80.1	19.1	52.6	47.4
World-wide % drawing BAQ	67.8	53.5	75.5	9.7
CONUS force expected to receive VHA	126,103	24,721	531,013	61,478
Total cost	\$213M + \$ 31M + \$363M + \$ 28M = \$635M			

The next step was to estimate the number of married and single CONUS personnel who would receive the VHA. To do this, we needed to know the percentage of CONUS personnel who are married or single and the percent currently drawing BAQ in CONUS. These percentages were not available, but the world-wide percent married (single) and the world-wide percent drawing BAQ were and were thus used in the calculations. The number of married (single) CONUS personnel who are expected to draw a VHA was calculated by multiplying the June 30, 1975 CONUS force by 1) the percent married (single) and 2) the percent drawing BAQ. Separate calculations were of course made for officers and enlisted personnel. Finally, the total cost was computed by multiplying the average annual VHA for each of the four grade-marital status groups by the CONUS force expected to receive the VHA in each group and summing the total costs for these 4 groups.

Below are the costs of all the VHA plans. The same procedure as described above was used to derive the costs of plans based on the other measures of housing dollars (HD 2 - HD 6).

The cost of a plan whose base is 20 percent or RMC was made also. The average adjustment factor for officers under this plan is 2.1 percent while for enlisted personnel it is 4.4 percent (see table 4). The average monthly VHA for married officers is .02 (\$1600) = \$32 per month, while for single officers the average VHA is .02 (\$1579) = \$31.58 per month. The estimated monthly VHA for married enlisted personnel is .044 (\$797) =



TABLE 23  
COST OF ALTERNATIVE VHA PLANS

<u>Measure of housing dollars</u>	<u>Cost ( In millions )</u>
HD 1	635
HD 2	321
HD 3	65
HD 4	475
HD 5	248
HD 6	441

\$35.06 and the amount for single enlisted personnel is .044 (\$776) = \$34.14. Using the number of CONUS personnel expected to receive the VHA in table 22, the estimated cost of such a plan is \$306M. With the numbers provided, the costs of VHA plans which are based on some fraction of RMC other than .2 or where the basis is different for officers and enlisted personnel could be easily calculated.



## AN EVALUATION OF THE VHA CONCEPT AND SUGGESTED NEXT STEPS

As discussed above, a VHA can be integrated into the next several pay raises in such a way that it will have no real budgetary impact. Thus, the desirability of the VHA need not hinge on the matter of cost, but it does hinge on other questions.

Possible undesirable effects have been stated previously. The most frequently mentioned are that (1) personnel will perceive a movement from a high cost-of-living area to a low cost-of-living area as a cut in pay if a VHA is in effect, and (2) the VHA is unnecessary since assignment for high and low cost areas will balance out over the course of a military career.

The first objection can be overcome by making the VHA a separate component of compensation and making evident to personnel why this component of compensation exists. Personnel overseas get cost-of-living adjustments which vary from area to area, and there is no evidence that the interarea variability of the adjustment has caused discontent.

There is evidence that CONUS personnel would be willing to accept a VHA. In a recent survey (reference 7, p. C-29), 72 percent of respondents said they would be at least somewhat in favor of BAQ reflecting area housing costs.<sup>1</sup>

The second point that is made against a VHA is that, over the course of a military career, assignments in low-cost areas probably balance out assignments in high cost areas. Therefore, from a long-run perspective, there is really no need for a VHA. For career personnel, this argument may be true. However, for the bulk of one-term or two-term servicemen, this argument probably does not hold. And, since these personnel are the lower ranking enlisted men and officers, the need for an income supplement in the high cost areas is the greatest. Further, in some military occupational specialties, individuals are assigned only to certain installations during the course of their military careers. Therefore, for careerists, the argument that assignments in high and low cost areas will balance out over the course of a career will not hold.

Even if assignments in low and high cost areas balance out over the course of a career, a VHA may be beneficial. Currently, if personnel are to have the same standard of living, regardless of their duty station, they must save while in low cost areas in order to dissave (and therefore have the same living standard), while in the high cost areas.

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<sup>1</sup> However, the statement of the question (reference 7, p. A-15) did not make it clear whether the average level of total compensation was to be held constant or increased upon implementation of the variable BAQ. The proportion of personnel at least somewhat in favor of a VHA might be considerably lower if the implementation of the plan does not imply higher average compensation.

A VHA would allow personnel to balance consumption and income at each point in time, rather than forcing them to save in some periods and dissave in others.

Therefore, these arguments against a VHA can be heavily discounted. However, there are certain possible allocative effects which are uncertain. It is not known, for example, what impact a VHA would have on factors such as retention behavior and willingness to accept transfers. There may be other allocative effects of a VHA which are unknown and difficult to predict, at this point.

One possible allocative effect of a full-fledged GPA which eliminates all variation in real pay is that it might generate an interarea preference problem if personnel would, on the average, rather live in higher cost metropolitan areas than lower cost rural areas. Currently, the fact that real compensation is higher in the lower cost areas is a compensating differential which provides an inducement for personnel to go willingly to the lower cost areas. One feature of a VHA, as opposed to full-fledged overall GPA, is that it would in fact eliminate only a fraction of the interarea difference in living costs rather than the whole difference. Therefore, the VHA has a built-in mechanism which reduces any geographic preference problem which might arise.

There is one more possible allocative effect that may be foreseen. Proportionately more Army installations, especially large ones, are located in low cost rural areas, while proportionately more large Naval installations are located in high cost urban areas. If the average VHA is different across services (and it appears that this will be the case), the relative payoff to joining different services will be altered by introduction of VHA. By altering the average payoff to be derived from joining these two services, the VHA may change the ability of each service to attract new recruits. Whether this will be a serious problem cannot be determined beforehand, although we suspect the effect will be negligible.

If a VHA can be implemented in such a way that it will not have overriding undesirable allocative effects, the primary consideration in judging the desirability of the plan is one of equity. Do interarea cost-of-living differences really reflect an inequity in the military compensation system and should the government be concerned with eliminating them?

Certain arguments have been ventured which attempt to avow or disavow the existence of an equity problem. On the one hand, it is pointed out that military personnel are not free to migrate from one geographic area to another if they perceive that one income - geographic residence combination is preferable to another and, therefore, involuntary assignment to high cost-of-living areas imposes an unfair hardship on them. From this perspective, there is an equity problem.

On the other hand, some argue that, in the context of an all-volunteer force, the fact that individuals choose a military career as opposed to a civilian career means that they perceive that the monetary and non-monetary benefits from a military career will be higher than their best civilian alternative, regardless of their duty station. This view would hold that an equity problem does not exist.

Proof of the existence or non-existence of an equity problem probably cannot be established analytically. Whether there is an equity problem and whether a VHA (or GPA) should be implemented to resolve it is inherently a value judgment.

We feel that additional compensation for personnel assigned to high cost-of-living areas, such as Washington, D.C., is justified, since housing costs appear to occupy an inordinately large share of the pay of personnel in these areas, especially lower-paid personnel. This is strictly a value judgment and does not rest on any firm analytical base.

If it is decided that a GPA will be implemented, and that the GPA is to be an adjustment to RMC, we again reiterate that new data will have to be generated from price surveys in areas containing military installations. If, however, policy-makers opt for a VHA, and the NAVFAC housing cost data are to serve as the empirical base for this allowance, we strongly recommend that improvements be made in this survey. Currently, there are several difficulties inherent in the NAVFAC data which limit their validity for the purposes of a GPA. The data are not collected for other, more limited purposes, and they are not fully suitable for use as the basis for a GPA.

First, not all installations are surveyed contemporaneously. Some that were surveyed in earlier years were not surveyed in 1975. Some, although not all, installations will be surveyed in 1976. In an inflationary world, significant errors may be introduced into the ranking of installations by MHC if installations are not surveyed at the same time. Comparison of the 1975 CONUS-wide averages with the 1976 CONUS-wide averages indicates significantly higher 1976 averages in all pay grades. Contemporaneous surveys are necessary at all installations if the ranking of installations is to be valid.

Second, there are other, more basic problems. As mentioned previously, the number of observations on which average expenditures by pay grade are based is in many cases very small. In other instances, certain pay grades are not represented at all. However, attempts should be made to obtain decent sample sizes whenever possible. The problem alluded to previously is that for pay grades where MHC averages are based on small numbers of observations, the averages appear to be subject to a great deal of sampling error. While the weighting scheme employed earlier to obtain an overall installation MHC eliminates some of the variation in MHC due to sampling error, this problem can be reduced in future surveys by expanding sample sizes in the underrepresented pay grades, whenever possible.

A third problem in the survey, also alluded to previously, is that the quality and quantity of housing is not held constant. The indexes we constructed earlier were not price indexes. While economic theory suggests that the range on these constructed indexes should put a lower limit on the range of price indexes, it is clearly possible to better control for quantity and quality of housing in future surveys.



A future difficulty has to do with the incentive of personnel to overstate housing costs. Personnel will tend to overstate housing costs in the NAVFAC survey if they realize that the results form the basis for a VHA. Some way of validating the responses (e.g., checking mortgage or rental payment records) is necessary. At a minimum, a random sample of responses should be selected and validated if a mail survey is used.

An alternative data gathering methodology might be better. Rather than surveying military personnel at all, the methodology used in civilian sector price surveys might be employed. First, define a particular grade of housing (or several grades of housing) and then have a team of surveyors determine what this quality housing costs in the various areas in which military installations are located. This methodology is employed in the Family Budgets COL index survey, among others. The approach may be preferable for two reasons. First, measurement errors due to random sampling and varying quality of housing will be reduced. Second, because this method does not rely on the responses of military personnel, there would be no problem of incentive for personnel to overstate what they spend on housing.

If policy-makers choose to implement a VHA, we strongly recommend that the NAVFAC survey be repeated (with the improvements, noted above), or that data be collected by price surveys. The housing cost indexes we have constructed show what can be done with the NAVFAC or other data. But, we do not feel that, in and of themselves, they provide a sound basis for immediate implementation of a VHA. The cost of obtaining a new and more reliable data set should be minor relative to the problems which might ensue if a VHA were implemented on the basis of the possibly faulty housing cost indexes constructed in this paper.

One final problem should be mentioned. The question arises about whether bachelors (personnel without dependents) should be treated differently than married personnel. Since only scant data exist on the housing costs of bachelors, the analysis here was by necessity based on data for married personnel. While there are no data on bachelors, we suspect that if housing cost indexes for bachelors at the installations in this study were constructed, they would be very similar to the indexes constructed for married personnel. If this hypothesis is true, then a VHA for bachelors could be based on the very same VHA adjustment factors as for married personnel. In the absence of separate data for bachelors, a VHA for bachelors will have to be based on the married personnel indexes.



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APPENDIX A

NAVFAC AVERAGE MONTHLY HOUSING COSTS OF MILITARY PERSONNEL  
FOR 1975 AND 1976,  
BY RANK AND TYPE OF HOUSING

# APPENDIX A

## NAVFAC AVERAGE MONTHLY HOUSING COSTS OF MILITARY PERSONNEL FOR 1975 AND 1976, BY RANK AND TYPE OF HOUSING

<u>Rank</u>	<u>Year</u>	<u>Owned Housing</u>		<u>Rented Housing</u>	<u>Total Private Housing</u>
		<u>House</u>	<u>Mobile Home</u>		
09	1975			400	400
	1976	621		545	606
08	1975	439	600	500	462
	1976	528		558	534
07	1975	439	200	320	411
	1976	582	200	472	541
06	1975	498	420	406	485
	1976	567	423	485	556
05	1975	464	364	383	453
	1976	512	406	430	502
04	1975	419	318	333	405
	1976	470	357	362	457
03	1975	372	250	278	343
	1976	407	281	299	383
02	1975	320	215	238	279
	1976	349	251	252	303
01	1975	304	213	214	235
	1976	335	196	237	258
WO3	1975	337	218	297	322
	1976	376	296	320	363
WO2	1975	318	211	269	294
	1976	371	223	307	347
WO1	1975	280	208	241	365
	1976	339	233	335	326

<u>Rank</u>	<u>Year</u>	<u>Owned Housing</u>		<u>Rented Housing</u>	<u>Total Private Housing</u>
		<u>House</u>	<u>Mobile Home</u>		
E9	1975	313	220	279	303
	1976	341	259	299	332
E8	1975	301	212	271	288
	1976	328	234	285	313
E7	1975	281	202	241	262
	1976	309	228	256	288
E6	1975	273	207	222	241
	1976	295	218	230	258
E5	1975	256	198	193	204
	1976	270	205	203	218
E4	1975	233	191	172	176
	1976	248	199	181	187
E3	1975	210	176	161	163
	1976	247	199	173	177

SOURCE: Naval Facilities Engineering Command, "NAVFAC Housing Costs Surveys for 1975 and 1976."



APPENDIX B  
CATEGORIZATIONS OF CONUS MILITARY INSTALLATIONS  
UNDER THE 10 PERCENT AND 15 PERCENT PLANS

APPENDIX B

CATEGORIZATIONS OF CONUS MILITARY INSTALLATIONS  
UNDER THE 10 PERCENT AND 15 PERCENT PLANS

This appendix provides the categories into which each CONUS military installation in the U.S. would fall under two of the plans described in the text. The first plan was outlined in table 11 and is based on 10 percent changes in the MHC index. The second was outlined in table 12 and is based on 15 percent changes.

The 118 installations for which an MHC index was computed are, in most cases, easily categorized. The remaining installations, for which MHC indexes are not available, are starred. The category into which each of these installations is likely to fall is determined by using the category of installations in close geographic proximity. When an installation is located in rural area and the closest installation for which a MHC is available is located in an urban area, the rural area installation is placed one category below the urban area installation (and vice versa). In some cases two categories are given when the appropriate category cannot be easily determined.

A CATEGORIZATION OF CONUS MILITARY INSTALLATIONS  
ACCORDING TO TWO VHA PLANS

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Alabama</u>		
Ft. Rucker	5	4
Craig AFB	5	4
<u>Arizona</u>		
Ft. Huachuca	4	3
*Yuma P.G.	5	3
*Gila Bend	5	3
<u>Arkansas</u>		
Little Rock AFB	4	3
*Blytheville	5	3
<u>California</u>		
Los Angeles	1	1
San Diego	3	2
San Francisco	2	2
*Centreville Beach	4	3
Lemoore	4	3
El Toro	2	2
Twenty-nine Palms	5	3
Ft. Ord	3	2
*China Lake	5	3
*El Centro	4	3
*Long Beach	3	2
*Port Hueneme	5	3
*Barstow	5	3
*Camp Pendleton	5	3
*Oakland Army Terminal	3	2
*Sacramento	3	3
Edwards AFB	5	3
Vandenberg AFB	4	3
*Travis AFB	4	3
Castle AFB	3	2
Beale AFB	4	3
George AFB	3	2
*Sharpe A.D.	5	3
*Sierra A.D.	5	3

<u>State and Installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Colorado</u>		
Lowrey TTC	2	2
Ft. Carson	4	3
Fitzsimmons A. H.	3	2
<u>Connecticut</u>		
New London	3	2
<u>Delaware</u>		
*Dover AFB	4	3
<u>District of Columbia</u> (All installations in metropolitan D.C. area)	1	1
<u>Florida</u>		
Jacksonville	3	2
Pensacola	4	3
Orlando	3	2
*Key West	4	3
*Panama City	4	3
Cecil Fld.	3	2
*Mayport	3	2
Eglin AFB	4	3
Homestead AFB*	2	2
*Patrick AFB	4	3
MacDill AFB	3	2
*Tyndall AFB	4	3
<u>Georgia</u>		
*Athens	4	3
Albany	4	3
Ft. McPherson	3	2
Ft. Gordon	4	3
Ft. Benning	5	3
*Marietta	5	3
*Glynco NAS	5	3
*Ft. Stewart	5	3
*Robins AFB	5	3
*Moody AFB	5	3
<u>Idaho</u>		
*Mt. Home AFB	3	2
*Idaho Falls	3	2



<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Illinois</u>		
*Chicago	2	2 or 1
*Great Lakes	3	2
Scott AFB	4	3
*Glenview, IL	4	3
<u>Indiana</u>		
Indianapolis and		
Ft. Harrison	4	3
Grissom AFB	5	3
<u>Iowa</u>		
Rock Island	3	2
<u>Kansas</u>		
Ft. Leavenworth	5	3
McConnell AFB	4	3
Ft. Riley	5	4
<u>Kentucky</u>		
Ft. Campbell	4	3
Ft. Knox	5	4
*Lexington	4	3
<u>Louisiana</u>		
New Orleans	4	3
Ft. Polk	6	4
England AFB	5	3
*Barksdale AFB	4	3
<u>Maine</u>		
Brunswick	3	2
*Winter Harbor	4	3
*East Machias	4	3
*Loring AFB	4	3
<u>Maryland</u>		
Patuxent River	3	2
Ft. Meade	3	2
Aberdeen P.G.	5	3
Andrews AFB	2	1
*Ft. Ritchie	4	3
*Ft. Detrick	4	3
*Bainbridge	4	3

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Massachusetts</u>		
Boston	1	1
*Nantucket	3	2
Hanscom AFB	2	1
Ft. Devens	3	2
*Natick Labs	3	2
*Westover	3	2
<u>Michigan</u>		
U.S. Army Tank Command	3	2
*Sawyer AFB	5	3
Wurtsmith AFB	5	3
*Kincheloe AFB	5	3
*Selfridge AFB	5	3
<u>Minnesota</u>		
*Minneapolis-St. Paul	2 or 3	2
*Duluth	2 or 3	2
<u>Mississippi</u>		
Gulfport	5	3
Meridian	5	3
*Pascagoula	5	3
Kessler TTC	4	3
*Jackson	4	3
*Vicksburg	4	3
<u>Missouri</u>		
Kansas City	3	2
St. Louis	4	3
Ft. Wood	6	4
*Richards-Grebaud AFB	3	2
*Whiteman AFB	5	3
<u>Montana</u>		
Malmstrom AFB	5	3
<u>Nebraska</u>		
Omaha	3	2
Offut AFB	3	2
<u>Nevada</u>		
*Las Vegas	4	3
*Fallon	4	3
*Hawthorne	4	3

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>New Hampshire</u>		
Portsmouth	3	2
Pease AFB	2	1
<u>New Jersey</u>		
Lakehurst	3	2
Bayonne	2	1
Ft. Dix-McGuire AFB	3	2
<u>New Mexico</u>		
Cannon AFB	5	3
Kirkland AFB	3	2
*White Sands M.R.	5	3
<u>New York</u>		
New York City	1	1
Schenectady	3	2
*Griffin AFB	3	2
*Seneca	3	2
*Ft. Drum	3	2
*Hancock Fld.	3	2
*Plattsburg	3	2
*U.S. Military Academy	3	2
<u>North Carolina</u>		
Ft. Bragg-Pope AFB	4	3
*Seymour Johnson AFB	4	3
Camp Lejeune	5	3
Cherry Point MCAS	5	3
*New River MCAS	5	3
*Cape Hatteras	5	3
<u>North Dakota</u>		
Grand Forks AFB	3	2
*Minot AFB	3	2
<u>Ohio</u>		
Rickenbacker AFB	4	3
*Cincinnati	3	2
*Wright-Patterson AFB	3	2
Cleveland	3	2

<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Oklahoma</u>		
*McAlester	5	4
Ft. Sill	5	4
Altus AFB	6	4
Tinker AFB	4	3
<u>Oregon</u>		
Portland	3	2
Coos Bay	4	3
<u>Pennsylvania</u>		
Philadelphia	1 or 2	1
*Mechanicsburg	4	3
*Indiantown Gap Mil. Res.	4	3
Carlisle Barracks	3	2
Oakdale	4	3
*Letterhenny A.D.	4	3
<u>Rhode Island</u>		
Newport	4	3
*Davisville	4	3
<u>South Carolina</u>		
Ft. Jackson	3	2
Charleston	3	2
*Beaufort-Parris Island	4	3
*Myrtle Beach AFS	4	3
*Shaw	4	3
<u>South Dakota</u>		
*Ellsworth AFB	3	2
<u>Tennessee</u>		
Memphis	5	3
<u>Texas</u>		
Chase Fld.	5	4
Dallas	3	2
Kingsville	5	4
Ft. Sam Houston	4	3
Lackland TTC	3	2
*Reese AFB	4	3
*Sheppard TTC	4	3
Ft. Hood	4	3
Ft. Bliss	5	4



<u>State and installation</u>	<u>10% plan</u>	<u>15% plan</u>
<u>Texas (Cont'd)</u>		
*Corpus Christi	5	4
*Bergstrom AFB	5	4
*Carswell AFB	5	4
*Dyress AFB	5	4
*Ellington AFB	5	4
*Goodfellow AFB	5	4
*Laughlin AFB	5	4
*Webb AFB	5	4
Red River A.D.	5	4
<u>Utah</u>		
Hill AFB	4	3
*Dugway P.G.	4	3
<u>Virginia</u>		
*Newport News	3	2
Norfolk	3	2
Yorktown	3	2
Belvoir	2	2
Ft. Eustis	4	3
Ft. Lee	3	3
Ft. Monroe	4	3
*Dahlgren Lab	3	2
*Langley AFB	3	2
<u>Washington</u>		
Bremerton	4	3
Seattle	3	2
Whidbey Island	4	3
Ft. Lewis	4	3
*McChord AFB	4	3
<u>West Virginia</u>		
*Sugar Grove	4	3
<u>Wisconsin</u>		
*Milwaukee	2	2
Ft. McCoy		
<u>Wyoming</u>		
Warren AFB	4	3

APPENDIX C  
CONUS INSTALLATIONS WITH UNKNOWN  
HOUSING COST INDEXES

APPENDIX C  
CONUS INSTALLATIONS WITH UNKNOWN  
HOUSING COST INDEXES

This appendix contains a list of CONUS installations for which MHCs could not be determined. An installation MHC could not be determined if the data in the NAVFAC summary housing expenditure report was unusable, or if the data was not available. Data were not available either because installations were surveyed but, the data were not included in the summary report, or installations were not surveyed in 1975. The 1975 expenditure data for installations which were surveyed but not reported in the summary report are on computer tape at NAVFAC.

Installations in the following list are marked with an (\*) if the 1975 data were available but unusable, or a ( + ) if 1975 data are available on tape but unreported in the summary report. Installations which were not surveyed in 1975 are unmarked. Most of the Army and Navy installations were surveyed in 1975. Many of the Air Force installations which were not surveyed in 1975 will be surveyed in 1976. An ( X ) beside the Air Force installations below indicates that these installations will be surveyed in 1976.

<u>Installation, State</u>	<u>Total personnel</u>
	<u>Navy</u>
Davisville, RI	42*
Winter Harbor, ME	339*
Cutler, East Machias, ME	126*
Nantucket, MA	118*
Earle Colts Neck, NJ	573+
Lewes DEL	112*
Mechanicsburg, PA	191*
Cape Hatteras, NC	158*
Newport News, VA	2,939+
Cheatham Annex, Williamsburg, VA	182+
Yorktown, VA	664*
Sugar Grove, W.VA	129*
Key West, FLA	4,439*
Mayport, FLA	14,472+
Panama City, FLA	244*
Whiting Fld, FLA	3,027+
Athens, GA	422*
Marietta, GA	688+
Pascagoula, MS	508*
Beaufort, SC	4,772+
McAlester, OK	188*
Corpus Christi, TX	4,074+

<u>Installation, State</u>	<u>Navy (Cont'd)</u>	<u>Total personnel</u>
Chicago, IL		207*
Great Lakes, IL		27,459+
Glenview, IL		800+
Indianapolis, IND		302*
St. Louis, MO		189*
Omaha, NEB		268*
Milwaukee, WISC		229*
China Lake, CA		828+
El Centro, CA		622+
Long Beach, CA		4,118+
Point Mugu, CA		2,298+
Port Hueneme, CA		8,796+
Centerville Beach, CA		179*
Dixon, CA		64+
Monterey, CA		1,701+
Stockton, CA		267+
Fallon, NEV		640+
Hawthorne, NEV		248+
Idaho Falls, ID		1,531+
Coos Bay, OREGON		101+
Pacific Beach, WA		104+
Annapolis, MD		5,756+
Indian Head, MD		438+
Wahlgren, VA		131+
Yuma, AZ		3,771*
Barstow, CA		726+
Camp Pendleton, CA		22,564+
Albany, BA		812+
Parris Island, SC		10,786+
Quantico, VA		7,675+
Moffett Fld, CA		2,477
Glynco NAS, GA		1,123
Idaho Falls, ID		1,537
Bainbridge, MD		1,721
Albuquerque, NM		456
Las Cruces, NM		184
New River MCAS, NC		4,409



<u>Installation, State</u>	<u>Army</u>	<u>Total personnel</u>
Presidio of S.F.		4, 108*
Ft. Stewart, GA		2, 377+
Ft. Drum, NY		216+
Ft. Hamilton, NY		625*
Indiantown Gap Mil. Res, PA		190*
Ft. McCoy, WISC		100*
Ft. McClellan, AL		4, 216*
Yuma Proving Fround, AZ		352*
Sharpe AD, CA		97*
Sierra AD, NEV		284*
Lexington AD, KY		172*
Picatinny Arsenal, NY		155+
Seneca AD, NY		400*
Letterkinny AD, PA		182*
New Cumberland AD, PA		247*
Red River AD, ARK		75*
Dugway PG, UT		317*
White Sands M.R., NM		1, 191*
Natick Lab, MA		189*
Ft. Ritchie, MD		1, 333*
Ft. Detrick, MD		681*
Vint Hill Farms Sta., VA		829*
Oakland Army Terminal, CAL		654
Sacramento, CA		257
Ft. Snelling, MINN		182
Jackson, MISS		237
Vicksburg, MISS		42
Albany, NY		132
U.S. Military Academy, NY		2, 810
Cincinnati, OH		215
Columbus, OH		226
	<u>Air Force</u>	
Edwards, CA		4, 056*
Vandenberg, CA		5, 049*
Patrick, FLA		3, 392*
Robins, GA		4, 451*
Mt. Home, ID		3, 781*
Grissom, IND		3, 020*
Loring, ME		4, 067*
Sawyer, MI		4, 195*

<u>Installation, State</u>	<u>Air Force (Cont'd)</u>	<u>Total personnel</u>
Minot, ND		6,376*
Gilabend, ARIZ		188*
Reese, TX		2,399*
Shepard, TX		10,088*
Gunter, AL		1,200
Maxwell, AL		4,104
Davis Monthan, AZ		7,156
X Blytheville, AK		2,793
X Travis, CA		9,035
USAF Academy, CO		2,563
X Peterson Fld., CO		2,386
Ent, CO		2,307
Dover, DE		5,151
X Tyndall, FLA		3,829
X Moody, GA		2,381
Barksdale, LA		6,483
Kincheloe, MI		2,901
X Duluth, MINN		1,437
Columbus, MISS		2,630
X Richards-Gebaur, MO		2,668
Whiteman, MO		3,300
X Las Vegas, NEV		6,829
McGuire, NJ		5,485
X Hancock Field, NY		1,094
X Plattsburg, NY		4,055
X Seymour Johnson, NC		5,456
Wright-Patterson, OH		8,714
Gentile, OH		124
X Newark, OH		125
Vance, OK		1,248
Kingsley Fld, OR		462
X Myrtle Beach, SC		2,844
X Shaw, SC		5,405
Bergstrom, TX		5,056
X Carswell, TX		4,688
Dyress, TX		4,444
Goodfellow, TX		1,744
Laughlin, TX		2,503
Webb, TX		2,157
X Langley, VA		8,387

A COMPARISON OF MILITARY AND CIVILIAN MARITAL  
STATUS AND AVERAGE FAMILY SIZE

A Staff Research Paper  
Prepared For  
The Third Quadrennial Review  
Of Military Compensation

28 January 1976



## QUADRENNIAL REVIEW OF MILITARY COMPENSATION

### A COMPARISON OF MILITARY AND CIVILIAN MARITAL STATUS AND AVERAGE FAMILY SIZE

It has been suggested that the current military compensation system leads to "larger" families because fringe benefits such as health care, commissary and exchange benefits favor large families. A study published by the Brookings Institute "The Military Pay Muddle" presents data to show that "this incentive structure, by making a military career relatively more attractive to those with families, has contributed to the recent marked growth in the proportion of military personnel who are married and in the average total number of military dependents".<sup>1</sup> The study states "The increase in the proportion of new volunteers who are married is particularly noteworthy; only about 7 percent of army recruits were married in 1955. But about 22 percent were married in 1974. Since only 9.3 percent of all males in the target population (ages 18-19) were married as of March 1973, the military seems to be relatively more attractive to those who are married."<sup>2</sup>

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<sup>1</sup> "The Military Pay Muddle", Martin Binkin, The Brookings Institute, Washington, D. C., 1975, p. 38.

<sup>2</sup> Ibid., p. 39.



The proportion of military personnel married and average family size have grown. Unfortunately, these statements concerning relative marriage rates are based upon a comparison of dissimilar groups, since the civilian data includes non-working students and unemployed persons whose low income level could be expected to help defer marital plans.

Because of the implications of marital status to military manpower costs, available data was analyzed to determine the relative marital status of the military population compared to the civilian population. The marital status comparison was made with civilians of comparable age. The family size comparison was made with civilians of comparable age and income levels. It was found that the military population shows lower relative marital status and family size values than the civilian "cohort".

a. Among military personnel, 55.0% are married, while 65.2% of civilian males ages 18 to 44 are married. Civilian males are chosen for comparison because over 95% of the military is male. Military personnel who are women have far fewer dependents than their civilian counterparts. Tabs A & B show this and related comparisons.

b. Comparing families of size two or more, military families have an average size of 3.54 while civilian families of comparable age

and income have an average size of 3.96.<sup>1</sup> Tabs C & D show this and related comparisons.

c. One comparison in Tab C is of special interest. In general, young families with incomes less than \$1,000 (non-working students and unemployed are included in this group) have a smaller average family size than young families with incomes similar to military incomes. Specifically, for families headed by someone less than 25 years old, those earning less than \$1,000 have an average family size of 2.76, whereas those earning between \$6,000 and \$9,000 have an average family size of 2.90.

In comparison to overall U. S. population of comparable age and income levels:

- a. Military males are less frequently married and;
- b. Military personnel have smaller families.

It has been argued that "adopting a more equitable incentive structure--equal pay for equal work--could contribute to a reversal of this trend"<sup>2</sup> (toward growth in average family size). The data included in

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<sup>1</sup>Note that identical family size data bases are not available. The civilian data includes only children under 18 years of age. The military data represents "dependents", a category which would include children 18 through 21 as well as dependent parents. The number of dependent parents is considered to be very small.

<sup>2</sup>Binkin, p. 39

Tabs A through D do not support inferences of a relationship between the mix of salary and benefits and expected family size. The evidence indicates that military marriage rates and family size are somewhat less than the civilian population and any perceived increase in marriage rate and family size is probably attributable to the military population becoming more similar to the civilian population as the anomalies attributable to conscription are removed from the compensation system.

It therefore appears that proposals to modify the military compensation structure must carefully consider the risks of raising the average married-to-single ratio and average family size toward the national average, at increased fringe benefits cost to DoD.

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Comparison of Military and Civilian Marriage Rates

<u>Age Group</u>	<u>Officer</u>	<u>Military<sup>1</sup> Enlisted</u>	<u>Total</u>	<u>Civilian Male<sup>2</sup></u>
18-19	None	10.3	10.3	8.2
20-24	34.7	36.2	36.2	41.3
18-24	34.7	30.4	30.5	31.2
18-44	77.1	50.7	54.2	65.2
18-54	78.1	51.2	55.0	70.5

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<sup>1</sup> Includes both men and women; women represent 4.6% of military

<sup>2</sup> Includes only men, since military is predominantly men.

Source:

Military - Percentage married by age, June 30, 1974. Computer printout produced by actuary, (Military Personnel Policy) OASD (M&RA)

Civilian - Marital status and living arrangements, March 1974, Table 1, Series P-20, No. 271, issued October 1974, Current Population Reports, Population Characteristics, Bureau of Census

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TAB A



Comparison of Military and Civilian Marriage Rates

<u>Age Group</u>	<u>Civilian Males<sup>1</sup></u>	<u>Military<sup>1</sup> Population</u>
17	2.0%	4.0%
18-19	8.4	10.3
20-21	26.9	25.5
22-23	50.3	42.4
17-23	23.6	27.4
24-25	66.9	60.4
26-27	76.7	74.4
28-29	81.5	81.0
30-34	85.7	85.9
35-39	87.9	88.6
40-44	87.9	90.8
45-54	88.1	90.5
18-54	70.5	55.0

<sup>1</sup>  
Civilian male data used since military is predominately (95.4%) male

Sources:

Civilian - Characteristics of the population, United States Summary, 1970 Census of the Population, issued June 1973

Military - Military percentage married by age, 30 June 1974, Actuary, Military Personnel Policy, OASD (M&RA)

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TAB B

Comparison of Average Family Size for Military and  
Civilian Families with Equivalent Age and Salary Ranges

Military Group	Estimated Age <sup>1</sup>	Salary <sub>1</sub> Range (\$000)	Average Size for Families of Size Two or More		
			Military Families	Civilian	
				All Families	Husband-Wife Families
All DoD	18-44	6-50	3.54	3.96	4.04
Officer <sup>2</sup>	18-44	10-50	3.75	4.00	4.08
Enlisted	18-44	6-25	3.50	4.04	4.08
O-1 to O-2	< 25	10-15	2.66	2.80	2.82
E-1 to E-4	< 25	6-9	2.58	2.90	2.91
O-1 to O-2+ E-1 to E-4	< 25	6-15	2.59	2.85	2.86
--	< 25	< 1	--	2.76	3.16
O-3 to O-6	25-44	15-50	4.02	4.07	4.21
E-5 to E-9	25-44	9-25	4.05	4.13	4.16
O-3 to O-6+ E-5 to E-9	25-44	9-50	4.05	4.08	4.17

<sup>1</sup> Civilian age and salary ranges, equivalent to average regular military compensation (RMC), selected from Census Tables.

<sup>2</sup> Commissioned Officers, O-1 through O-6.

Source:

Military - Developed from FY 76 President's Budget (Detailed Personnel Backup Data)

Civilian - Money Income in 1973 of Families and Persons in the United States, Table 28, Series P-60, No. 97, Jan 75, Current Population Reports, Consumer Income Bureau of Census

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TAB C

Comparison of Number of Children in Military and Civilian Families

<u>Age of Family Head</u>	<u>Average Number of Children</u>	
	<u>Civilian<sup>1</sup></u>	<u>Military<sup>2</sup></u>
<25	0.81	0.58
25-34	1.98	1.76
35-44	2.58	2.55
<44	2.05	1.53

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<sup>1</sup> Represents number of own children under 18 years of age for husband-wife families.

<sup>2</sup> Represents number of dependents (maybe over 18 years of age) in families of size 2 or more. Data by age of family head unavailable. Data based on grade of military member and average age for each grade. Following relationships used: <25:E-1 to 4 and O-1; 25-34:E-5 and 6, O-2 and 3; 35-44:E-7, 8 and 9, O-4 and 5.

Sources:

Civilian - Table 207, Characteristics of the Population, United States Summary, 1970 Census of Population, issued in June 1973, U. S. Department of Commerce.

Military - Developed from FY 76 President's Budget (Detailed Personnel Backup Data) and Number of Military Personnel by Pay Grade and Age, 30 June 1974, OASD (M&RA), Actuarial Consultant, 1 May 1975, Chart 1891.

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TAB D